

# MARINE RECORD

ESTABLISHED 1878.

VOL. XX. No. 12.

CLEVELAND---MARCH 25, 1897---CHICAGO.

\$2.00 Per Year. 10c. Single Copy

## LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

### PRESIDENT.

CAPT. JAMES W. MILLEN, Detroit, Mich.

### VICE PRESIDENTS.

J. S. Dunham,	Chicago.	Howard L. Shaw,	Bay City.
C. E. Benham,	Cleveland.	F. J. Firth,	Philadelphia.
David Carter,	Detroit.	L. S. Sullivan,	Toledo.
S. D. Caldwell,	Buffalo.	M. J. Cummings,	Oswego.
W. H. Wolf,	Milwaukee.	Geo. Berriman,	Erie.
W. C. Farrington,	Duluth.		

### SECRETARY.

CHARLES H. KEEP, Buffalo.

### TREASURER.

GEORGE P. MCKAY, Cleveland.

### COUNSEL.

HARVEY D. GOULDER, Cleveland.

### FINANCE AND EXECUTIVE COMMITTEE.

James Corrigan,	Cleveland.	W. P. Henry,	Buffalo.
John Mitchell,	Cleveland.	J. J. H. Brown,	Buffalo.
H. A. Hawgood,	Cleveland.	R. P. Fitzgerald,	Milwaukee.
Thos. Wilson,	Cleveland.	C. W. Elphicke,	Chicago.
M. A. Bradley,	Cleveland.	H. G. Dalton,	Cleveland.
J. C. Gilchrist,	Cleveland.	W. C. Richardson,	Cleveland.
L. C. Waldo,	Detroit.	B. L. Pennington,	Cleveland.
D. C. Whitney,	Detroit.		

### COMMITTEE ON LEGISLATION.

L. M. Bowers,	Cleveland.	Wm. Livingstone,	Detroit.
E. T. Evans,	Buffalo.	J. S. Dunham,	Chicago.
P. P. Miller,	Buffalo.	S. D. Caldwell,	Buffalo.
H. C. French,	Buffalo.	Jesse Spaulding,	Chicago.
Charles Paine,	Buffalo.	C. A. Eddy,	Bay City.
Edward Smith,	Buffalo.	Alex. McDougall,	W. Superior.
H. M. Hanna,	Cleveland.	F. J. Firth,	Philadelphia.
James Corrigan,	Cleveland.		

### COMMITTEE ON AIDS TO NAVIGATION.

Geo. P. McKay,	Cleveland.	W. M. Egan,	Chicago.
W. H. Becker,	Cleveland.	Frank Owen,	Ogdensburg.
C. E. Benham,	Cleveland.	A. W. Colton,	Toledo.
J. G. Keith,	Chicago.	James Davidson,	W. Bay City.
W. A. Hawgood,	Cleveland.	Alvin Neal,	Port Huron.
Thos. Wilson,	Cleveland.	M. M. Drake,	Buffalo.
John W. Moore,	Cleveland.	Philip Minch,	Cleveland.
W. A. Livingstone,	Detroit.		

## THE EOPHONE.

The Secretary of the Treasury has submitted to Congress an estimate of \$12,000 to place "eophones" on revenue cutters. This is a device for locating sound, and is now in use on many government vessels.

The eophone is a sound-catching instrument and with it one can determine with much accuracy, in a fog or darkness, the location both as to direction and distance, of sound. It is formed of two bell-mouthed receivers, placed one on each side of a sheet of metal or other material extending some distance in front of the receivers. A tube from the left hand sound receiver is placed at the left ear of the person operating the eophone, and a tube from the right hand receiver at the right ear. When the sound is heard with equal plainness in both ears the instrument is pointing in the direction of the sound, when the sound is heard with greater plainness in one ear than in the other the instrument is pointing at an angle with the direction of the sound. The sensitiveness of the instrument is remarkable. The ripple of oars has been detected in the night time when the rowers were trying to row as silently as possible. One time a bell-buoy was picked up in a dense fog, after being located by the eophone from a distance of a mile. Another experiment was the chasing of a tug by the sound of its whistle, the eophone operator being blindfolded, and the vessel pursued twisting on its course in every possible way, in the effort to elude its pursuer. The eophone is attached to the top of the pilot house, the tubes from the receivers being brought inside the house for use by the pilot. The instrument can be turned in any direction by the operator below.

## A WRECK BUOY.

A Baltimore man has invented a sounding buoy by the use of which he believes information of the causes of many wrecks will be furnished even when the crews perish, also the location of the sunken vessel. The device is to be carried on the deck of a vessel, and attached to it by a reel containing any desired length of line. Letters can be put in a box attached to the buoy, and hermetically sealed against danger from the water. The buoy itself contains a ball which, agitated by the rolling motion, strikes against the sides of the buoy, and makes a noise to attract the attention of passing vessels.

## NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—MINNESOTA.

Treasury Department,  
Office of the Light-house Board,  
Washington, D. C., March 19, 1897.

## TWO HARBORS LIGHT STATION.

Notice is hereby given that, on the opening of navigation, 1897, the color of the fourth-order light at this station, on the point at the easterly side of Agate Bay, Lake Superior, will be changed from red to white, and the color of the lantern light at the outer end of the breakwater making off from the point will be changed from white to red.

## GRASSY ISLAND NORTH CHANNEL RANGE LIGHT STATION.

Front Light—Notice is hereby given that, on or about March 31, 1897, a fixed red lens-lantern light will be established in the structure recently erected, in 3 1-2 feet of water, near the northerly end of the flats lying to the northward and westward of Grassy Island, and 2,050 feet (2-5 mile) N. 22 deg. 25 min. west. (NNW.) from Grassy Island (South Channel Range Rear) Light House, Detroit River. The light will be shown from an octagonal lantern surmounting a square tower projecting slightly from the northeasterly side of a square one-story dwelling, with sharp roof and dormers, and a boathouse in the rear, surrounded by an embankment. The entire structure is of wood, painted yellowish drab.

The focal plane of the light will be 30 feet above the mean level of the river. The light will be illuminated 90 deg. of the horizon, lying between S. 87 deg. 20 min. W. (W. 1-4 S.) and S. 2 deg. 40 min. E. (S. 1-4 E.) (bearings from a vessel), or 60 deg. to the eastward and 30 deg. to the westward of the range line.

The approximate geographical position of the light, as taken from Chart No. 56 of the United States Survey of the Northern and Northwestern Lakes, will be:

Latitude, North, 42 deg. 13 min. (45 sec.);

Longitude, West, 83 deg. 08 min. (09 sec.).

Rear Light—On the same date, a fixed red lens-lantern will be established in the structure recently erected in about 5 1-2 feet of water, 2,000 feet (3-8 mile) S. 27 deg. 20 min. W. (SSW. 7-16 W.) in rear of the front light. The light will be shown from an octagonal lantern surmounting a square, inclosed, pyramidal, yellowish drab, wooden tower, on a pile foundation.

The focal plane of the light will be 50 feet above the mean level of the river. The light will be illuminated 180 deg. of the horizon, lying to the northward of N. 62 deg. 40 min. W. (NW. by W. 9-16 W.) and S. 62 deg. 40 min. E. SE. by E. 9-16 E.), or 90 deg. to the eastward and 90 deg. to the westward of the range line.

Latitude, North, 42 deg. 13 min. (28 sec.);

Longitude, West, 83 deg. 08 min. (21 sec.).

The lights mark a range line for running the channel of the Detroit River between the Ecorse Range line and Detroit. The range line clears the 18-foot curve off the

northwesterly part of Fighting Island by about 400 feet, off Ecorse Marsh by about 500 feet, and the point of the Canadian shore opposite Fort Wayne by about 500 feet. The range intersects the Ecorse Range line at a point about 3,500 feet (2-3 mile) from the Ecorse Range Front Light, and about 3,150 feet (3-5 mile) from the front light of this range.

Bearings are true; miles are statute miles.

By order of the Light-House Board,

JOHN G. WALKER,

Rear Admiral, U. S. Navy, Chairman.

## AMERICAN STEEL IN GREAT BRITAIN.

According to the latest report of George F. Parker, United States consul at Birmingham, England, it appears that for six months or more, steel has been imported from the United States into Wales for use in the tin-plate trade, and much interest has been aroused in the newspapers devoted to the iron and steel trade. Last week, the first large shipment was made into this, the distinctively metal district of England. As showing the effect which this new course of trade is likely to have on the iron and steel business here, I send editorial articles published in the Birmingham Daily Post of January 21 and 22, and also a letter from the current issue of the same paper, giving a chemical analysis to show the quality of the steel sent from the United States, which reads as follows: Referring to your recent paragraph on the large importations of American steel to the Midlands, it will, I think, interest many of your readers to learn that its composition, if the samples submitted to me are an average, is distinctively different to that of the bulk of England steel intended for similar purposes. Two specimens were sent to me for examination some six weeks ago from South Wales, where American steel has been received before it came to the Midlands, in which I found the following composition:

	Per cent.	Per cent.
Carbon .....	0.135	0.18
Phosphorus .....	0.11	0.1
Manganese .....	0.31	0.21

The steels were supplied for tin-plate making, and I was informed by the users that their working was in every way excellent. In nine cases out of ten, users of soft steel would say that such material would be harder than is desirable for such work.

Such differences are very interesting, and this fact and the importance of the matter are my reasons for giving these details, which, though not of common interest, may certainly interest many of your technical readers.

The Birmingham Daily Post says in part:

The announcement made by the New York correspondent of the Standard that 1,600 tons of steel billets are on their way from Philadelphia to this country for delivery in Birmingham is an unpleasant reminder of our English steel producers that there is a limit to the expansion of prices, and that values, like water, soon find their level all the world over. Now, in this country, for some time past, prices of iron and steel, as well as of other commodities, have been steadily rising, under the influence mainly of improved demand; but in the United States the reverse process has been witnessed, owing to the widespread commercial depression, traceable largely to currency causes. The result is that the United States has not only ceased to offer a market of any value for our iron and steel manufactures, but is actually invading our home markets with American-made iron and steel. There is nothing new, of course, in the importation of American pig iron, which can be produced now at prices with which English and Scotch smelters can not pretend to compete, but it is certainly a new departure for American-made steel billets to be selling for delivery in the English Midlands.



## NEWS AROUND THE LAKES.

## CHICAGO.

Special Correspondence to the Marine Record.

Captains Harry Richardson and W. J. Carter were in this city, Saturday.

The steamer Adelia Shores was sold to Captain Sam Neff, of Milwaukee, for \$38,000.

The engineers of the steamers Madagascar commenced fitting out her machinery, Monday.

Winter paid Chicago another visit on Tuesday, a continual snow storm having fallen all day.

Miles Barry, of the Independent Tug line, is running for alderman in the 24th ward in this city.

The engineers of the Steamer Iroquois arrived here, Sunday. They will fit out her machinery at once.

The Independent Tug line have their tug Crawford in their floating dry dock for a general rebuild.

George Hausher, of the firm of Hausher & Sons, vessel supply men, of Cleveland, was in this city, Saturday.

O. H. Schutt, the well known marine meat supply man, left here, Saturday night, on a visit to his many patrons at Buffalo.

The steel barge Carrington was launched, Saturday afternoon, at the Chicago Shipbuilding Co.'s shipyard, South Chicago.

J. G. Keith & Co. chartered the steamer Kittie M. Forbes for corn to Buffalo at 2c, the steamer Viking for corn to Kingston at 4c.

The engineers of the Western Transit Co.'s steamers, laid up this port, arrived here last week to fit out their respective steamers' machinery.

The Independent Tug line towed the steamer Kittie M. Forbes to the Nebraska elevator and the steamship Curry to Counsellmans' elevator at South Chicago to load grain.

The Dunham Towing & Wrecking Co. towed the whaleback steamer to the Wabash and Indiana elevators, and the steamer Alex McVittel to the Keith and to elevators to load grain.

Louis Windmuller, the well-known vessel supply man, left here on Sunday night for Cleveland and Detroit on a business trip.

The steamer Saranac, of the Lehigh Valley Trans. Co., laying at the company's dock, took fire, Saturday morning. The fire was confined to the top gallant forecabin, where is originated from an overturned stove. The fire boat Yosemite was quickly on the scene and prevented the fire from spreading. The damage did not exceed \$100.

"The fleet of vessels which laid up in Chicago River last winter was much smaller than the year previous, and only about half as large as the winter fleet of two years ago. This year's fleet comprises, all told, 233 vessels. Seventy-two of these are steamboats, 177 are tow barges or sailing vessels, and 44 are passenger and excursion boats, line tugs, etc. All are preparing for their first trips, as the ice is fast breaking up in the harbor. The collapse of the iron combine and the large orders placed for iron have created an impetus in the iron ore trade which looks very encouraging to vesselmen, and they are all looking forward to better times. This means that the grain and lumber trades will suffer as against iron-carrying. In the grain trade there are only about sixty boats engaged, many already loaded for Buffalo. In the lumber trade 114 small vessels have been chartered for the season. At all the lake lines there a feeling that the volume of business this year will exceed that of any former season.

## DETROIT.

Special Correspondence to the Marine Record.

The Star line steamer Arundel will come out in a few days.

The steamer Mascot has had her wheel house and texas put on, and she will be easily ready by April 15.

The City of Cleveland is billed to start about April 1st. She is having the spring repairs and is in fine shape.

The two lines now operating between Detroit and Cleveland say that the ice in Lake Erie is disappearing very fast. Navigation will very soon be safe for all boats there.

Colchester light was displayed Sunday night for the first time. Captain Manson, the keeper, succeeded finally in reaching the light after several unsuccessful attempts.

D. A. McIntyre, clerk of the City of the Straits, has come back from a two months' visit in Canada, and will resume his duties as clerk as soon as the Straits starts, about April 1.

C. A. Bielman has put in the lowest bid for furnishing the postal marine boat during 1897. The bid is \$13.25 per day. The contract has not yet been let, but will be very shortly.

Up till Monday, large quantities of badly rotted ice were passing down the Detroit river. On Tuesday, however, it had been driven back along the east shore of lake St. Clair, where it is fast breaking up and disappearing.

Edwards has brought his tug, which has been building at Trenton, up to Detroit, where the upper works will be put on her. The boat will be, by a long ways, the finest harbor tug in Detroit, and it has been suggested that she be called the "Nonpareil."

Capt. C. D. Second met with an accident at the Minnesota wharf last week which may be attended with serious consequences. He was supervising the repairs to a

whaleback steamer from a scaffolding which was 20 feet from the ground. The temporary structure fell, carrying Capt. Second with it. It was necessary to remove him to the hospital and the surgeons pronounced his injury a fracture of the collar bone. The patient was afterwards removed to his home at No. 39 Holland Place.

Quite a large crowd went up to the Flats on Sunday last, and spent a very enjoyable time. The day was very fine and no trouble was experienced with the ice by the Promise. Lake St. Clair was still half full of ice.

The barge Chicago Board of Trade was sold in Port Huron on Monday by United States Marshal Bernatz for \$1,555 to L. H. Sullivan, of Toledo. Mr. Sullivan spent Tuesday in Detroit visiting among the vesselmen. He got the barge at a bargain, as she was valued at \$2,500.

Capt. John Condon, now living at 30 Lowell Place, this city, is now 77 years old, and noticing in The Record where Capt. Alvin Dodge had lately passed away, also that he at one time had been mate of the propeller Finerty, Capt. Condon remarked that he was mate there himself. Capt. Samuel Langley having charge and Mr. Dodge second mate. Charley Hanson was chief and George Strong second engineer. The above were officers of the ship when she blew up and carried ten or twelve lives with her. The late Capt. Dodge escaped with his life by just about one minute of time, as he walked forward the moment the stern blew out of the boat. We were afterwards picked off the wreckage, but I was so injured as to render amputation of my right leg necessary above the knee, and was laid up in the General Hospital for five months at that time. I have sailed on the lakes since 1837, or just sixty years of it, except for four years spent in the navy during the war, serving in the frigate Wabash, gunboat Fawn, and others. There has been great changes since father left West Point on the North River and settled in Michigan, or since 1829, and I know the lake marine history with its many changes since that time.

"What do you hear from Cleveland about the iron outlook? Do you hear of any charters being made? Do you know of any deals in iron ore going forward? Our agents in Cleveland have nothing to say. Things seem utterly at a standstill," said one vessel owner. "Of course, we do not want early navigation, but we do want signs of activity in the iron market. The later the Straits opens the better, for there is a large grain fleet on Lake Michigan which must come down as soon as it is safe, and when they get down they will be looking for up cargoes at once. But if the iron difficulty continues too long, there will be an immense tonnage waiting for a chance to earn something, and it will almost surely hurt rates."

Charles A. Edson and Frank Whitmill have associated under the name of the Wyandotte Pleasure Boat Co., and will engage in building launches, yachts, canoes and rowboats. The company will locate their offices at the foot of Chestnut street, and enter into the work at once.

Among the many tasty devices which have made the D. & C. line famous for years in advertising circles, nothing is more appropriate and looks better than the opening announcement for 1897. It represents a bunch of oyster shells lying on a table, and one of them held in a person's hand, while with the other hand and a knife the shell is opened, disclosing the first steamer of the season, the City of Detroit, at full speed. The idea is unique and catchy, the opening of navigation and the opening of the shells being emphasized and brought into prominence in the device.

"I don't want my name quoted, but you may put me down as saying the following," said a prominent Detroit vesselman. "I look for rates to open up about May 1st at about 75 cents, and hold slack at that, with but little tonnage tying itself up. By July I expect to see a decided stiffening in prices for freight and to see an active demand for tonnage. As the season advances, and this season will be one of the heaviest ever known, freights will get better, until I look for \$1.10 or even \$1.15 in November. There is an immense quantity of grain to come down, and an immense quantity of manufactured articles to go back. The general tendency is decidedly encouraging, and I look for a constant stiffening in the situation."

William A. Livingston said: "We are having more inquiries in package freight than a year ago. I do not know what will come of them, but it is encouraging. I do not think the ore rate will open above 75 cents nor below 70 cents. At the latter figure some of the smaller boats cannot pay expenses."

A report has gained circulation here that the Lake Shore railroad was making a move to coerce the D. & C. line into returning to their old freight rates. Mr. Worcester, superintendent at Detroit for the Lake Shore, however, denies such a report as being likely to be true, but says he has no knowledge of such a move, and that it might be possible Grant Grummond admitted knowing of some such move, but refused to talk. The D. & C. line say they have not been notified of any such intention on the part of the railway. Other inquiries failed to find anything definite, and it is extremely unlikely there is any serious foundation for the story.

Duncan A. McIntyre, clerk of the City of the Straits, said the Cleveland-Toledo route had been found to pay well last year, and that there was a growing business in the line. The D. & C. line may include Pelee Island in their list of stops some day, which will afford a cool and very pleasant place for passengers to spend a few hours, or a day or so en route to the North or St. Lawrence points.

## CLEVELAND.

Special Correspondence to the Marine Record.

L. Windmuller, of Chicago, and F. A. Myers, of Buffalo, visited Cleveland this week.

Capt. William Harlow, of Toledo, is at this port seeing to the fitting out of the steamer Preston and getting her ready for the opening of navigation.

Captain George P. McKay is in Washington this week looking after a part of the interests of the great lakes. It is hoped that an appropriation will be secured for lights.

Captain McKay, master of the steamer City of Detroit, reports that there is very little ice between Cleveland and Detroit. This has been found out during his past several trips on the D. & C. line between here and Detroit.

The Globe Iron Works Co. have sent out invitations to attend the launch of the Sydney G. Thomas, built to the order of the Bessemer line. She will be launched from the ways at 11 o'clock, standard time, Saturday, March 27.

Colonel Jared A. Smith, corps of engineers, U. S. A., has recommended that the bid of L. P. & J. A. Smith, for the construction of 432 linear feet of breakwater at Ashtabula, be accepted. The bid was \$43,139.36. Work will be commenced as soon as the necessary preliminaries can be arranged.

The dry docks are beginning to pick up work and the stagnation recently experienced in repair work is about over. There is every indication that from this on there will be plenty of work going forward until the opening of navigation and after that the usual season work will of course set in.

A few coal cargoes for the head of Lake Superior are on the market. Thirty cents is offered for the first trip, but no charters have been reported yet. Vesselmen have been asked for figures by the Illinois Steel Co. on a block or ore to be moved from Escanaba to Milwaukee, Chicago and South Chicago. The total amounts to about 450,000 tons, but contracts have not been closed yet.

The only men that are interested in the lake carrying trade that are showing any life are the underwriters. A number of insurance men from different ports were in the city this week hustling for business. Capt. Lasalle, of Duluth, and Capt. J. G. Keith, of Chicago, were hustling around in the interests of the new company which is trying to enter the lake trade this season.

At a meeting of the iron ore pool which was held at this port on Tuesday, representatives of nearly all the large interests being present, it was found impossible to arrive at a basis for continuing the association which would be satisfactory to all the interests. It was decided that no further effort to reach an agreement would avail, and the association was formally dissolved. The price of standard Gogebic ore last year, such as Norrie, was \$4 per ton, and standard Mesaba ore like the Fayal was \$3.35 per ton. One or two large producing interests have been extremely urgent since the Rockefeller-Carnegie agreement to press down the price of ore to the lowest possible limit. It is proposed by them to reduce the price this year to \$2.65 for the Norrie and \$2.40 for the Fayal. With the above result contracts for carrying ore will commence and there is no knowing how low freights will drop in the eagerness of vessel owners to close up for a few months' work.

Capt. Peter Edgar was in Cleveland last week paying his family and friends a short visit. He has been in Tonawanda all winter looking after the repairing of six of the Corning & Edgar fleet of vessels. He is one of the oldest and best known vessel masters on the lakes, and has been a successful navigator both on salt and fresh water. In 1867 he took the schooner Narragansett across from Cleveland to London with a cargo of oil and successfully sailed her on the ocean a little over two years without a mishap. He then left her in Boston and returned to the lakes, making Cleveland his home, where he has resided ever since. He also commanded a number of deep water ships before he commenced sailing on the lakes. For the last 16 years he has sailed for Gordon Corning of Saginaw, and will this year sail the schooner Our Son, of the same line. He went to sea when he was 11 years old and is now 70 years past and has sailed ever since without missing a season, and never had a mishap of any serious nature with any vessel he had charge of. He is as spry and looks like a man of 50, and we wish him good luck and hope to see him with us a long time to come yet. The Narragansett returned to the lakes and is now in commission on Lake Michigan.

## PORT HURON.

Special Correspondence to the Marine Record.

Vessel men are now looking for a general opening of navigation.

Cautionary signals will be resumed at the weather office on April 10.

Engineer Robert Dornan will go as second engineer on the steamer Colorado this season.

Nearly all of the chief engineers in Port Huron have secured positions for the coming season.

Vessel Inspectors Danger and Van Liew are busily engaged nowadays granting licenses to captains, pilots and engineers.

There is still plenty of ice in Lake Huron but not very heavy. A report from Lexington says lots of ice as far out as the eye can see.

The steamer Grand Rapids is to be placed on the Lake



Erie route between Rondeau and Cleveland. She is now at Sault Ste. Marie.

The Phoenix Iron Works has secured the contract for furnishing the steam-barge Toltec a steam steering engine and windlass engine.

On December 10 last Engineer Fred P. Fitzgerald fell on the steamer Madagascar at Chicago, breaking two ribs. The London Guarantee and Accident Company, through its agent, H. E. Runnels, on Saturday paid him \$190.71 for twelve weeks and five days' disability.

General Manager Carter, of the D. & C. line, has ordered a cut in the freight rates between Detroit and Cleveland, that is said to be unprecedented in the history of the lakes. From now on the rate will be 20 cents per hundred pounds for every class of goods from one to six inclusive.

James E. Davidson paid \$1,500 for the steamer Sanilac at a recent sale in Bay City. The Sanilac was built at Algonac in 1867. She is 209.75 tons net, 161 ft. 5 in. long, 27 feet 5 inches in breadth, 60 feet 1 inch in depth. She was owned last by Wells, Stone & Co., of Saginaw, although Capt. Hannan was her ostensible owner for the past few seasons.

Boynton & Thompson have done a good business during the winter in fitting up their fleet of vessels for the coming season. They have completely rebuilt the tug Mary Virginia and on Tuesday placed a new boiler, built by Saginaw parties, in her hold. She will be assigned to work at the Sault. They have made the barge Church into a lightering and coal handling craft for use in this port. A powerful derrick has been placed on her. She will be able to handle 60 tons of coal per hour and to supply coal to vessels at any point in the lake or river. Their tugs are all fitted out ready for business and could start on a day's notice. Seven of their tugs are in this port and five at the Sault.

#### MILWAUKEE.

Special Correspondence to the Marine Record.

A steel plant, equipped with the latest and most improved machinery, is being constructed by the Milwaukee Dry Dock Co. at the foot of Mineral street at a cost of upward of \$30,000. The main building will be 135 feet long and 50 feet wide and will be completed in May. The driving of the piles on which the building will rest is now in progress. The equipment of the plant will include a large crane, capable of handling the largest piece of iron used in vessel construction; a rolling machine weighing 65,000 pounds, a planer twenty feet in length, a roll for rolling plates of the largest size, and a number of punching machines, the largest of which will weigh 35,000 pounds. The company is also making extensive improvements at its yard on Canal street. The contemplated plans show an attractive and substantial building, of attractive appearance as well as solidity. It will be constructed of the heaviest timbers, with iron braces and supports, and will rest upon hundreds of 50-foot piles.

#### BUFFALO.

Special Correspondence to The Marine Record.

The situation in marine circles continues quiet, and very little is being done as yet in the way of fitting out vessels for the coming navigation season. A start in that respect is, however, to be made, and Capt. John Sterling has arrived here with a view of putting the steamer Katahdin in shape. Capt. James A. Madigan is also here to look after the steamer S. C. Baldwin, and preparations are being made to fit her out at once.

Supt. Seeley, of the Erie Canal, states that navigation on the Erie Canal will open as early as usual this season. May 1 is the date, and the contractors at work on the improvements will have to be ready for the opening of the canal at that time. He laughed at the statement to the effect that it would be necessary to boat by way of the Niagara River to Tonawanda for some time after navigation opened, because the dams could not be opened at Buffalo till after May 1. He explained they seemed to forget that the canal was fed at Buffalo and the dams there would have to be opened before navigation could begin.

#### TOLEDO.

Special Correspondence to the Marine Record.

Herman Sterling has sold the yacht Florence to George D. Palmer, Jr., for \$250.

A man named Churchyard was the lowest bidder on the government work for which bids were opened at Buffalo this week for work, to be done at Dunkirk. Toledo dredge men put in bids, but they were apparently too high.

On Monday, Commodore L. S. Sullivan and Capt. William Harlow purchased the schooner Chicago Board of Trade at Detroit at marshal's sale, the consideration being \$1,555. The vessel carries 800 tons of coal or 550,000 feet of lumber. She is in good condition.

Commander Charles V. Gridley, inspector of the Tenth lighthouse district, has issued a notice that on the opening of navigation for 1897 a gas buoy showing a fixed white light will be placed to mark the southeast side of the inner entrance to the straight channel in Maumee Bay, in the position heretofore occupied by spar buoy No. 29 of that channel. All mariners, and especially those hav-

ing vessels or rafts in tow, are cautioned to avoid fouling this buoy.

The tug Marinette has steam up ready to take George H. Breyman & Bros.' dredge No. 3 to Lake St. Clair. As soon as the tug returns from Detroit dredge No. 1 will be taken to Lake St. Clair. As soon as possible dredges Nos. 1, 2 and 3 will resume work on the 20-foot channel in Lake St. Clair.

#### FLOTSAM, JETSAM AND LAGAN.

The Welland Canal will probably open April 19. Navigation opened on Lake Ontario on Tuesday, when the steamer Lakeside began making her regular season trips between Toronto and St. Catharines.

L. C. Waldo, of Detroit, has still about 28,000 tons of ore to bring down on last year's contracts, at \$1 and \$1.05. This amount will keep one of Mr. Waldo's boats busy during part of this season.

The steamers Fairbairn and P. P. Pratt are fitting out at Ashtabula. Three others will start fitting out there this week. All will carry coal, of which a large quantity is stored in the yards there.

Work at Davidson's shipyard is being rushed, about 500 men being steadily employed. The three large vessels, two schooners and a big steamer, are nearly planked and it is expected to have all three ready for launching by the opening of navigation.

It is now reported that Mr. W. Peterson of New Castle-on-Tyne, England, who is connected with a large shipping interests, has signed a provisional contract with the Canadian government for a Trans-Atlantic steamship service of four boats of 1,000 tons each, to be ready in two years and to steam over 20 knots per hour across the Atlantic.

The Dominion Government has definitely decided to push the work of deepening the St. Lawrence Canals to a uniform depth of fourteen feet, the work to be completed in two years. The recent visit of Capt. McDougall, president of the American Steel Barge Co., to Ottawa, is reported to have been in connection with this question.

Capt. B. B. Inman, manager of one of Duluth's tug companies, thinks he has solved the problem of winter navigation on the lakes, by the invention of an ice-crushing boat. The promoters of an enterprise to build ice crushers on the designs of Capt. Inman, think they will have a boat in operation before another year.

A change in the routes of the Hart Steamboat Line of Escanaba, is to be made this season, by the establishment of a weekly line between Escanaba and Manistee, Mich., via Sturgeon Bay and the ship canal. The routes to be covered by the boats during the season have been selected. Boats will run three times a week from De Pere and Green Bay as far north as Cheboygan. Green Bay ports from De Pere north as far as Gladstone will be served by a daily line. There will be a daily boat between Sturgeon Bay and Menominee.

The old revenue cutter Andy Johnson, which is to be condemned to make room for the Gresham, has had an interesting career on the great lakes, her history of usefulness in the enforcement of the revenue laws and in protecting merchant marine extending through a period of over thirty years. The boat has been a familiar figure in Milwaukee since she went into commission in 1865, as she has made her headquarters there since that time. Few notable events have taken place in which the Johnson has not added dignity by her presence. In 1889, during the reunion of the G. A. R., held at Milwaukee at that time, she added greatly to the effect of the sham battle in the bay, which was witnessed by thousands of veterans and visitors from all portions of the country. During the World's Fair she performed many important functions in connection with the reception and entertainment of guests of honor. It was on the Johnson that President Cleveland and his cabinet were conveyed to the World's Fair grounds on the day of the opening exercises of that great event. Twenty-one guns were fired on that occasion in honor of the President. She also accompanied Capt. Concas, in charge of the Spanish caravels, from Milwaukee to Chicago during the fair, and performed a similar service on the arrival of the Norseman with the viking ship, which made a cruise across the Atlantic to commemorate the discovery of America.

#### APPOINTMENT OF OFFICERS.

The masters and engineers of the Beatty Line are: United Empire—Jno. McNab, master; S. Brisbin, engineer. Monarch—E. Robertson, master; E. W. McKean, engineer.

The following officers have been appointed by the Detroit & Cleveland Steam Navigation Co.: City of Detroit—Capt. Alex. J. McKay, engineer, Wm. S. Huff. City of Cleveland—Capt. Alchy McLachlan, engineer; John M. Sargent. City of Alpena—Capt. Matthew Lightbody, engineer, A. Phillips. City of Mackinac—Capt. H. J. Sylfield, engineer, Wm. McDonald. City of the Straits—Capt. Duncan McLachlan, engineer, James Middleton.

Detroit Transportation Company, Hamtramck Transportation Company, Duluth & Atlantic Transportation company: Str. Iron King—William Miller, captain; John Hegemer, engineer. Str. Iron Chief—W. A. Irvine, captain; August Cobo, engineer. Str. Iron Duke—N. L. Miner, captain; Christ Howard, engineer. Str. Iron Age—A. J. Mahon, captain; John Phelan, engineer. Schrs. Iron Queen—Wells Bamford, captain; Iron Cliff—Thomas

Fitzsimmons, captain; Iron State—W. W. Carter, captain; Iron City—John Hurley, captain.

The following appointments have been made by Gilchrist & Fletcher, Alpena: Steamers F. W. Fletcher—Capt. John A. Stewart; engineer, S. A. Merrill. John Owens—Capt. Thomas Lillis; engineer, David Thompson. Frank W.—Capt. John Lawson; engineer, Byron Persons. Schooner India—Capt. H. Hansen.

Williams Trans. Co., South Haven, Mich. Str. City of Kalamazoo—David Morris, master; A. Krogman, engineer. Str. H. W. Williams—John Boyne, master; Perry Knaggs, engineer. Str. Glenn—Frank Swails, master; R. Riterson, engineer. Str. Lorain L.—A. C. Ingraham, master; P. Rubey, engineer.

Parker & Millen, Detroit, Mich.: Passenger str. City of Toledo—George King, master; Daniel Harkins, engineer. Passenger str. Greyhound—Bert Baker, master; Robert Meddler, engineer. Str. B. W. Blanchard—Thomas Meikleham, master; John Bloome, engineer. Wrecker Favorite—P. L. Millen, master; George L. Simmons, engineer. Tugs Saginaw, Balize, Onaping, Wales.

A. A. Parker, Detroit, Mich.: Str. A. A. Parker—J. T. Hutton, master; James Falconer, engineer. Str. John Oades—Timese Lemay, master; Charles Scott, engineer. Str. John Pridgeon, Jr.—D. N. Sherwood, master; John Mogan, engineer. Schrs. B. W. Parker—Edward Lohr, master; Red Wing—John Anderson, master; San Diego—John Mason, master; Loveland, Henry Morey, master.

H. J. Johnson, Cleveland, O.: Steamer H. J. Johnson—Chas. Primer, master; John Seymour, engineer. Schooner Helvetia—Capt. Neil Murphy.

American Transportation Co., Fairport, O.: Steamers Alex Nimick—D. P. Wright, master; E. J. Burns, engineer. John Harper—Fred Graves, master; Edward Reilley, engineer. Schooner Tyrone—F. E. Johnson, master.

Vulcan Transportation Co., Detroit: Steamer Forest City—Joseph Sanders, master; Charles Harland, engineer. Steamer R. J. Hackett—Thomas Sanders, master; William Bridges, engineer. Schooner H. H. Brown—Alex. Glenn, master. Schooner Wm. McGregor—John Hochrath, master.

Captain James Corrigan, Cleveland: Steamer Bulgaria, A. H. Gain, master; G. M. Newton, engineer. Steamer Caladonia—J. W. Brion, master. Steamer Italia—C. H. Cummings, master; W. P. Trelaven, engineer. Schooner Tasmania—John Sweeney, master. Schooner Northwest, Frank D. Perew, master. New barge (not named), Samuel E. Lewis, master.

#### THE REHABILITATION OF OUR MERCHANT MARINE.

Detroit, March 23.

To the Editor of the Marine Record.

Having perused with close attention the able communication from Mr. Frank J. Firth, I beg leave in your valuable paper to state a few facts.

First, as regards the decadence of American merchant ships on the ocean, I would say that it has rather been a total abandonment, for since the war, there has been no push made, to maintain an honorable share of ocean traffic by the American Merchant Marine.

As far as the unprofitable character of the investment is concerned, it is merely that the shipowners in the United States, have to emancipate themselves from the enormous profits, which formerly accrued from all kinds of commerce and be satisfied with smaller margins, as shipowners in other countries have done.

The difference in price of building, equipping and running steamboats, between this and foreign countries, is, when we look at actual figures, trifling indeed.

Victuals are cheaper in this country than in any other, and though Americans are more liberal in feeding their men, the difference in prices equalizes this. The wages of skilled officers is about even on all boats, but the Americans pay a trifle more to seamen and firemen, than they do across the water.

The price of fuel which is somewhat less in some foreign countries, can be equalized by buying part of it there.

The British-American boats, who absorb a good percentage of the traffic from this country across the Atlantic, seem to make a fair margin, as the increase of their tonnage upon the market testifies. Those boats, most of whom run out of American ports, feed their men according to American custom, and pay the same wages American boats do.

The truth of the matter is, that while foreign shipowners are satisfied, when they make a margin of seven to ten per cent on their investment, American shipowners do not consider less than fifteen to twenty per cent sufficient to make a venture, consequently, the enormous export from this country, amounting to hundreds of millions of tons annually, is thrown into the hands of foreign tonnage, without an effort or even a trial on the part of the United States for competition.

As regards subsidies a fleet will have to be constructed first to give them to. But, the undersigned's opinion is, that it would be a better plan, when the time comes, to strike at the root of the evil, and tax foreign tonnage, carrying American produce and merchandize a few cents per ton. In this connection I would like to hear further from Mr. Firth or others interested in this most momentous question.

FRANK HENRICH.



## AMERICAN HISTORICAL ASSOCIATION.

Agreement of 1817—Reduction of Naval Forces Upon the American Lakes.—By J. M. Callahan, of John Hopkins University.

(Continued.)

After Monroe's return from London, he had several conversations with Mr. Bagot upon the subject of the naval armaments upon the lakes, and he "thought at one time that they would agree," but when Monroe put his ideas in writing and sent the papers to Mr. Bagot informally, the latter would not subscribe his name to them. As a reason, he intimated that there was some difficulty as to his powers. Monroe, seeing there was "little probability of his being able to do anything immediately with Mr. Bagot" in relation to the fisheries and to the reduction of naval forces, it seemed unnecessary for him to remain in Washington to wait for Bagot's reply. The reply came soon after the departure of Mr. Monroe. Mr. Graham sent a copy of it to the President on July 29, and said:

This "reply" was, doubtless, Mr. Bagot's letter of July 26, which formally opened the negotiations at Washington by stating that in relation to the naval armaments on the lakes, the Prince Regent, "in the spirit of the most entire confidence," was ready to adopt "any reasonable system" which would contribute to economy, to peacefulness, and to the removal of jealousy. The "answer" which Monroe was to send "by the next mail" was, therefore, his letter of August 2, in which he submitted the "precise project" which was desired. The details of the proposal were given as follows:

I have the honor now to state that the President is willing in the spirit of peace which so happily exists between the two nations, and until the proposed arrangement shall be canceled in the manner hereinafter suggested, to confine the naval force to be maintained on the lakes on each side to the following vessels, that is: On Lake Ontario, to one vessel not exceeding 100 tons burthen and one 18-pound cannon, and on the upper lakes to two vessels of like burthen and force, and on the waters of Lake Champlain to one vessel not exceeding the like burden and force; and that all other armed vessels on those lakes shall be forthwith dismantled, and likewise that neither party shall build or arm any other vessel on the shores of those lakes.

That the naval force thus retained by each party on the lakes shall be restricted in its duty to the protection of its revenue laws, the transportation of troops and goods, and to such other services as will in no respect interfere with the armed vessels of the other party.

That should either of the parties be of opinion hereafter that this arrangement did not accomplish the object intended by it, and be desirous of annulling it, and give notice thereof, it shall be void and of no effect after the expiration of \* \* \* months from the date of such notice.

Monroe stated that immediate effect might be given to this project by convention or by interchange of notes, or that if Bagot had to wait for the sanction of his Government, a provisional reciprocal arrangement might be made. He also stated that in case Mr. Bagot's powers were not adequate to do more, he would be willing to concur in the suspension of further augmentation or equipment of vessels for the lakes named.

Mr. Bagot had no objection to any of the details of the proposition, but he announced his lack of authority to conclude definitely an agreement as to details without first submitting it to his Government for its consideration of "points connected with the internal administration" of the provinces, and as to the naval assistance necessary for the ordinary business of a peace establishment. In the meantime, he was unwilling to give effect to a mutual suspension of construction, equipment, and exertion on the lakes.

Monroe now proposed (August 12) in order that the arrangement should be equal, to adopt the detailed project of August 2 as a "provisional arrangement." But Bagot did not feel "authorized to make, even provisionally, any precise agreement as to the exact manner" of limiting the forces on the lakes. His power appeared to be limited, as Monroe wrote to Adams (August 13), "to a right to agree to suspend the further augmentation to the naval force on those waters, without fixing its maximum by any rational standard to the number of vessels which might be necessary."

Mr. Monroe stated to him, in his note of August 4, that if his power did not extend further than this, the United States Government would, upon receipt of a statement of the British force on the lakes and an assurance that it would not be further augmented, confine the United States

force to the same limits. Mr. Bagot agreed the next day to furnish the statement of the force as soon as he could get information on the subject, and closed his note by saying: "I can, in the meantime, give you the assurance that all further augmentation of it will be immediately suspended."

Since the specific proposition had to be referred to Lord Castlereagh, Mr. Monroe thought it probable that the conclusion of the negotiations would revert to Mr. Adams. In his letter of August 13, to Adams, he spoke of the obvious advantages of this as he (Adams) was "already authorized to treat on other important subjects." Adams was not inclined to see any advantage in it. It came in the nature of another surprise to him. When he received Mr. Monroe's letter he appears to have been inclined to question the sincerity of the existing Cabinet, whose policy appeared to him to be one of subterfuges, or refusals to negotiate, "or of expedients having all the features of refusal except its candor." He was tired of delays and surprises and uncertainties upon this subject. It was a jugglery of "now you see it, and now you don't," and he feared that the Americans were the credulous auditors who had been made fools in the game. When, on January 25, he made his proposal "for disarming, or at least for limiting armaments upon the lakes," he was convinced from the manner in which it was received that it would not be accepted. But in April he was "assured" by Lord Castlereagh that the Government was disposed fully to meet the proposition, and that Mr. Bagot should be immediately authorized to enter into formal stipulation for the purpose. And as it now appeared probable that Bagot's power would terminate in a reference back to his own Government, Adams was lead to suspicion that England was simply amusing the United States while preparing her defenses. He wrote Monroe September 27 that, "while Mr. Bagot was negotiating and receiving your specific proposition to be transmitted here, 52,000 tons of ordnance stores have been dispatched to Canada with the avowed purpose of arming their new constructed forts and new built ships upon the lakes." Monroe agreed with Adams (November 14) that it appeared that the British policy was to amuse, and was aware of the supply of cannon and munitions of war to Canada, but his recent communication with Mr. Bagot gave him more confidence in the sincerity of the British Government. By the close of the year there was more evidence to give assurance of good intentions and growing promptness. Its disposition of prompt activity in preventing actual conflict on the border may be here noticed.

On August 29 Mr. Adams had called Castlereagh's attention to the improper conduct of the commander of the British armed vessel Tecumseh in permitting men from his vessel to board several United States vessels upon Lake Erie in an improper manner. Castlereagh, fully "persuaded that measures no less reciprocal" would be taken by the United States, at once issued positive instructions to the civil, military, and naval authorities in North America to discourage by every means such proceedings in the future, and to pursue a conduct showing an amicable disposition. Even before Adams had presented this complaint to Lord Castlereagh, other similar acts had been committed, and it was inferred that they were "in compliance with a system" which the British commanders in Canada thought it their duty to pursue.

On July 26 General Cass wrote Monroe (General McComb also wrote to the Secretary of War) complaining of the improper conduct of a British officer of the British armed vessel Huron in boarding an American vessel, the brig Union, and searching her on the strait near Malden. It had also been represented to Cass that the act was supported by officers at Malden, who placed cannon in position to bear on the American vessel. Secretary Monroe thought (as Adams was also convinced in the case of the Tecumseh) that the British officers had mistaken the policy of their government.

## THE WARSHIP LAKE TREATY.

BY THE PRESIDENT OF THE UNITED STATES  
(A Proclamation.)

Whereas, an arrangement was entered into at the city of Washington, in the month of April, in the year of our Lord one thousand eight hundred and seventeen, between Richard Rush, Esq., at that time acting as secretary for the Department of State of the United States, for and in behalf of the Government of the United States, and the Right Honorable Charles Bagot, His Britannic Majesty's envoy extraordinary and minister plenipotentiary, for and in be-

half of His Britannic Majesty, which arrangement is in the words following, to-wit:

The naval force to be maintained upon the American lakes by His Majesty and the Government of the United States shall henceforth be confined to the following vessels on each side, that is—

On Lake Ontario, to one vessel, not exceeding one hundred tons burden, and armed with one eighteen-pound cannon.

On the upper lakes, to two vessels, not exceeding like burden each, and armed with like force.

On the waters of Lake Champlain, to one vessel not exceeding like burden, and armed with like force.

All other armed vessels on those lakes shall be forthwith dismantled and no other vessels of war shall be there built or armed.

If either party should be hereafter desirous of annulling this stipulation, and should give notice to that effect to the other party, it shall cease to be binding after the expiration of six months from the date of such notice.

The naval force so to be limited shall be restricted to such service as will in no respect interfere with the proper duties of the armed vessels of the other party.

And whereas, the Senate of the United States have approved of the said arrangement and recommended that it should be carried into effect, the same having also received the sanction of His Royal Highness, the Prince Regent, acting in the name and on behalf of His Britannic Majesty.

Now, therefore I, Jas. Monroe, President of the United States, do by this, my proclamation, make known and declare that the arrangement aforesaid, and every stipulation thereof, had been duly entered into, concluded, and confirmed, and is of full force and effect.

Given under my hand, at the city of Washington, this twenty-eighth day of April, in the year of our Lord one thousand eight hundred and eighteen, and of the independence of the United States the forty-second.

By the President, James Monroe.

John Quincy Adams, Secretary of State.

## BRITISH SHIPPING OUTLOOK.

The March report from H. E. Moss & Co., Liverpool, states that since their last issue the shipping trade has been favored with a "boom," but perhaps the shortest one on record. Owing to the rise in the value of wheat, etc., in August and September last, freights from the Black Sea and America rose rapidly, and there was the usual rush to buy or build new tonnage: the few steamers that were building for the builders on account were sold and a very large number of contracts for new boats were placed. The improvement was only too short-lived, and homeward freights are about back to where they were in July last, the net result being that about 250,000 tons extra of new steamers were ordered during the rush, which tonnage has still to come out and to be employed.

The builders, of course, have benefited by getting these orders, and most of the yards are at present very busy, but the majority of the new steamers were placed at low figures, and prices for building were not affected to a larger extent than 7 1-2 to 10 per cent.

A large number of the steamers at present on the stocks are large high-class cargo boats for the regular lines and companies; one foreign company alone has building at the present time vessels of this class, the total cost of which will exceed 1,000,000 pounds sterling. The competition of this type of vessels is a serious matter for the owners of "tramp" steamers.

The output of merchant tonnage launched during 1896 was 1,159,751 tons, being 208,000 tons more than during 1895. About one-third of the total output was built to the order of foreign and colonial shipowners. The total amount of merchant tonnage under construction on 1st January, 1897, in the United Kingdom, was 784,711 tons, being an increase of 73,000 tons as compared with 1st January, 1896.

The largest proportion of foreign tonnage at present on the stocks is for German and Japanese owners. The Norwegians continue to be our best customers for cheap second-hand vessels, and a good many obsolete vessels have been sold to Italians for breaking-up purposes, besides those bought by the English ship-breakers.

The value of sailing-ships is lower, owing no doubt, to this class of property being for a long time very unremunerative. The quantity of sailing tonnage launched during 1896 was considerably less than during 1895, and the total sailing tonnage of the world was reduced during 1896 by 264,000 tons.



**FRED W. MARTIN, NAVAL ARCHITECT.**

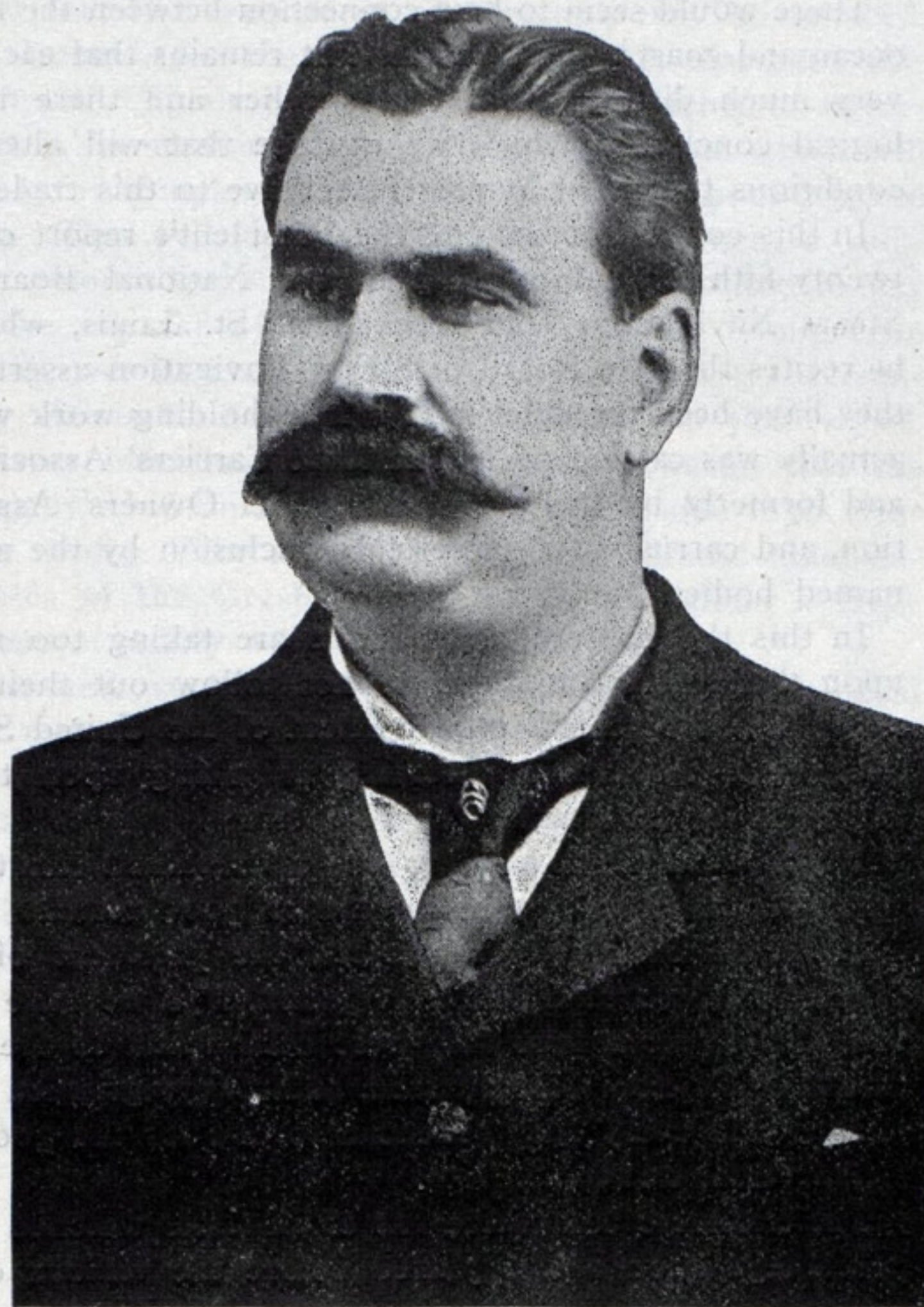
The portrait and cuts shown on this page are those of one of the leading yacht designers on the lakes. He also builds small craft up to fifty feet (steam or sailing yachts) and furnishes keels, stems and sterns worked to shape in the wood, and builds all kinds in "knockdowns" for shipment to any part of the world. For the past fifteen years Mr. Martin has handled the board and superintended many of the most prominent boat concerns in the United States.

Mr. Martin's first tuition in drawing was obtained under an Italian professor in the Collegiate Institute of Kingston, Canada, where he was placed at an early age. His first experience in yachting was also gained in that fine harbor, where in those days thirty or forty feet ten-tonners would start in a fleet from the old-fashioned "anchor start;" but his love for the water soon found him as "boy" aboard one of the Carruthers & Green fleet, bound for Chicago, where he engaged with the veteran boat builder, Thomas Bagley, where he served a rigid apprenticeship; for although Mr. Martin had some little knowledge of boat building, the variety of work done in this shop in those days would appall a modern "factory" boat-builder, from the lightest shell and racing gig, or barge, to a canoe and whitehall boat, up to a yawl boat or large sail, or steam yacht, not forgetting surf boats, metallic life-boats, government transport boats for western ports, life-saving boats, etc., etc., no two of which were even alike or any endeavor made to duplicate or catalogue them.

During '82 he was offered and accepted charge of the R. J. Douglass (then Powell & Douglass) boat works, of Waukegan, Ill., from '82 till '86. After a brief period in Chicago, where the first catalogue in America showing working drawings and lines were issued, was appointed designer with J. H. Rushton, Canton, N. Y., where he was one year; from there he went to the St. Lawrence River Skiff, Canoe and Steam Launch Company, at Clayton, N. Y., as designer, where he made their reputation for fast canoes and small craft and left after three years to fill the position of designer and superintendent of the Racine Hardware Manufacturing Co., where he built the first sailing craft from Racine (except those used by fishermen there and built by themselves) and also many steam, gas and vapor yachts, and 25 of the electric launches used at the World's Fair at Chicago, when after a period of three years with them he organized the Racine Boat Manufacturing Company, with others, where some of the fastest craft on the lakes were built, but with an increase in the capital stock of this concern he left to organize another company, which he did in the spring of '95, under the name of the Racine Yacht and Boat Works, at Racine Junction, but the inconvenience of a location a mile from the water was against this concern, and after a struggle of two years to bring it to the front he severed his connection (but retained his stock) to devote his entire time to his profession, which he has carried on in a small way independently for years, and with the increasing demand for parts of boats by amateur builders has added the other departments to his business above mentioned.

Mr. Martin is also the author of the "Album of Design," a work that has become very popular with naval architects,

When fully afloat it was found that the vessel had hogged i. e., drooped at the ends, three-fourths of an inch, an amount which, measured as it was on a length of over 300 feet, cannot but be regarded as satisfactory. The sagging was measured by cutting the deck of the boat platform and the top-side shell plating right down to the upper deck sheer strake and observing the opening and closing of the



FRED W. MARTIN, RACINE, WIS.

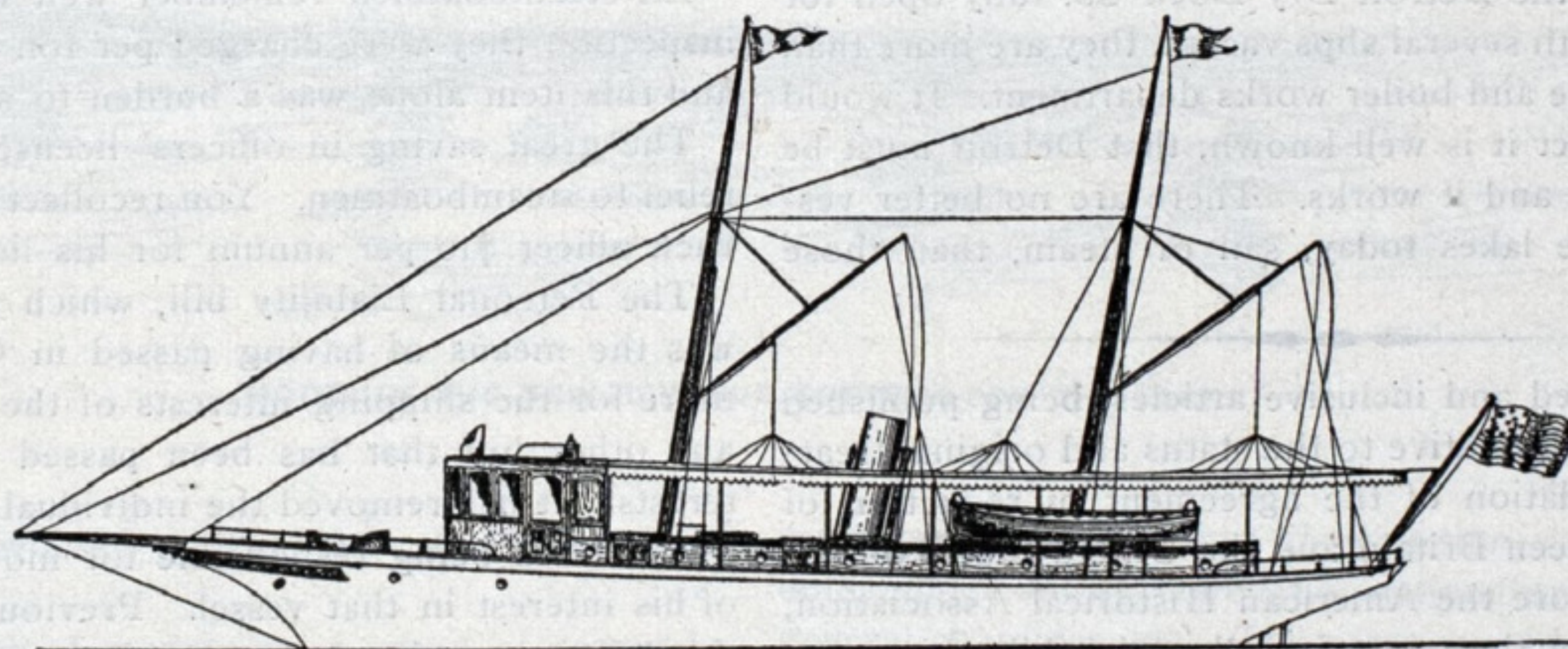
gap as the vessel went down the ways, the measurements being made by the simplest self-recording apparatus. The readings showed that when the stern was waterborne the vessel sagged, the opening in the deck closing to the extent of about two inches. The gap then opened to the ex-

out of line, being largely, however restricted to shipment for distant loading. The requirements of the timber ports appear to be pretty well provided for, whilst offerings of suitable tonnage have been liberal, although owners do not show any indication so far of accepting lower figures. The eastern market for sail tonnage has been rather quiet during the past week. Rates, however, continue firm.

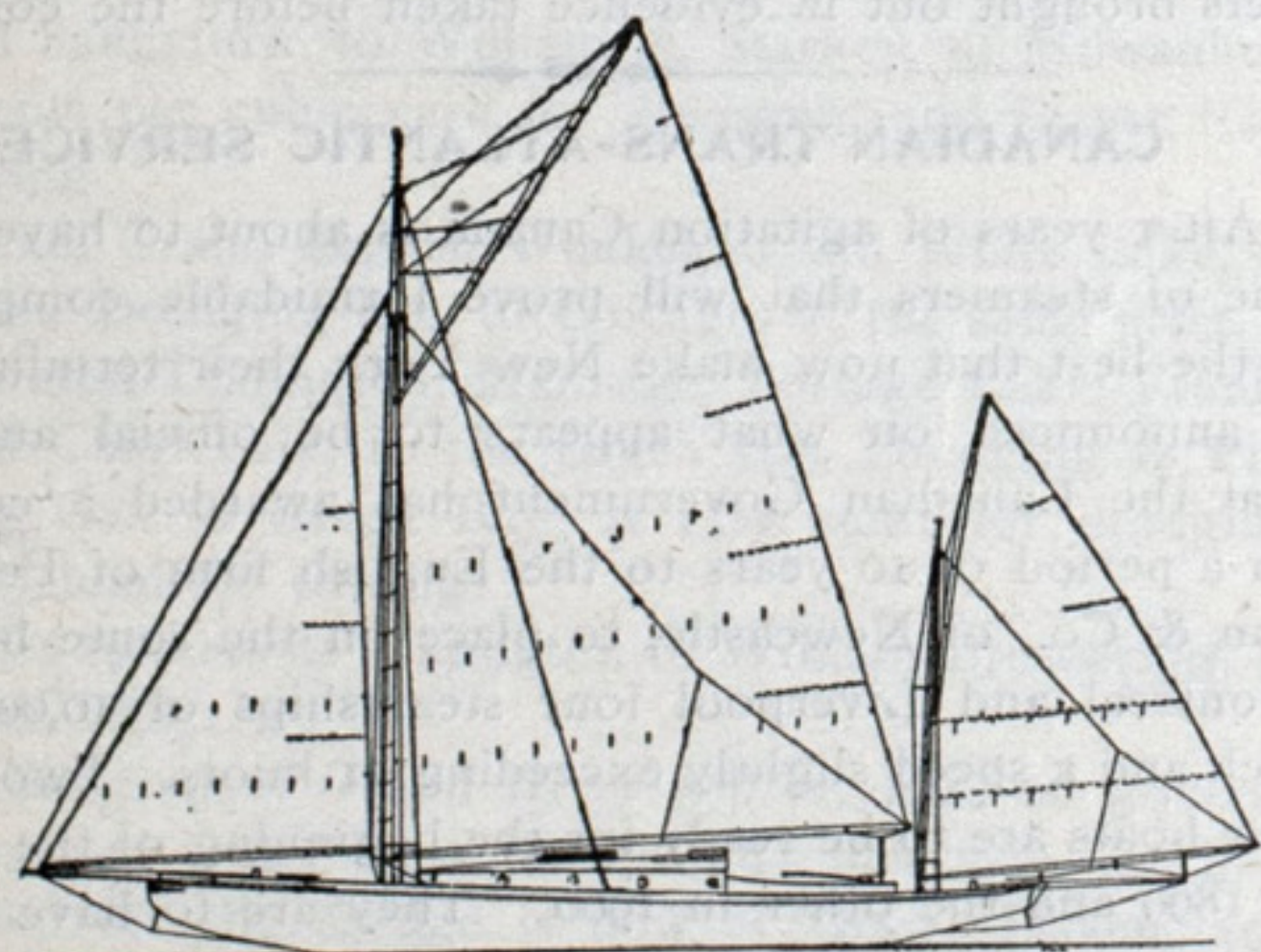
**WORKING IRON AND STEEL.**

Iron-making is a kind of cookery on a huge scale, writes R. B. Bowker in Harper's Magazine. The earthly impurities must be "roasted" or melted out from iron ore: the necessary carbon must then be properly mixed in from the fuel, or the unnecessary carbon burned out. This is the process of manufacture. A wrought iron bar or plate is always obtained from a puddle ball, an aggregation of grains of iron in a pasty, semi-fused condition, interspersed with a greater or less amount of cinder or slag. Under the powerful action of the rolls the grains are welded together, and a large part of the cinder is squeezed out, but enough remains interposed between the iron granules to prevent them from welding thoroughly and forming a homogeneous mass. The welded lumps elongate under the process of rolling, and the resulting bar resembles a bunch of iron fibres or sinews with minute particles of slag interspersed here and there. Such iron varies in resistance according to whether the power is applied with or against the fibre. Steel is the result of a fusing process. It may be crucible, Bessemer, or open-hearth steel, but in all cases it has been cost from a thoroughly melted and fluid state into an ingot mould, where it solidifies and is ready for subsequent treatment, such as hammering or rolling. The slag being rather lighter than the steel, it rises to the top of the melted bath, and does not mingle with the metal, which remains clean and unobstructed, and, after being cast in the mould, cools into a crystalline homogeneous mass in which no amount of rolling can develop a fibre. Thus steel possesses a structure more regular and compact than wrought-iron. Its resistance to strains and stresses is more equal in all directions, and its adaptability to structural use is vastly increased.

Capt. and Mrs. Homer Durand entertained the members of the Toledo Shipmasters' Association last Friday even-



PROFILE OF 70-FOOT STEAMER.



SAIL PLAN OF YAWL.

yacht builders and owners, and which is about to reach a second edition, the first 1,000 copies having been sold.

**"HOGGING AND SAGGING."**

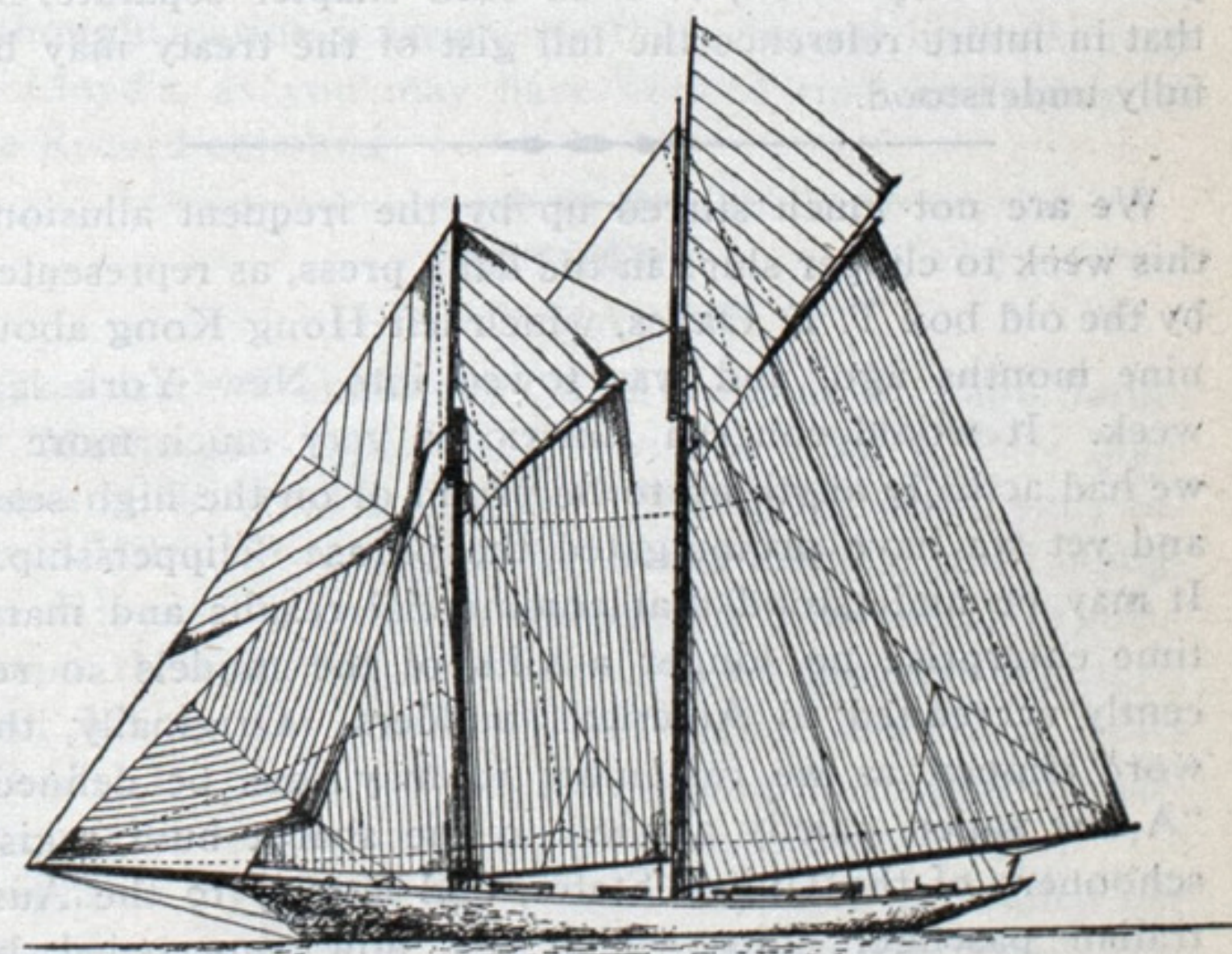
Some interesting figures are reported in the Shipping World as being obtained at Barrow, England, on the occasion of the launch of the cruiser Niobe, a vessel 435 feet in length, and whose launching weight was 6,300 tons.

tent of 21 inches from the normal, when it again closed and opened, finally settling when the vessel was fully water-borne with an opening 15 inches from the original position, due to the amount of hog, as previously stated. The Niobe's launching time, from the first movement until afloat, was 58 seconds.

**EASTERN FREIGHT REPORT.**

In the current weekly freight report issued by Messrs. Funch, Edye & Co., New York, they state that during the week under review there has been a perceptible and serious falling off in the inquiry for steamers to load grain, and, in consequence, owners have been obliged, in some instances, to meet quite a reduction in rates. A steamer closed last week to load for Dunkirk was replaced at 3d. per quarter less than the original charter, and several large and prompt vessels are now seeking employment, without receiving any ready response on the part of shippers. Steamers of moderate size, suitable for full cargoes of grain are likewise no longer in urgent request, and, in several instances, shippers have been able to cancel their sales on terms satisfactory to themselves, rather than meet the rates demanded by owners. We find at present quite a scarcity of fresh orders for full and part cargoes of grain, and such limits as come to hand appear to be altogether

ing at their residence, 1739 Huron Street. It is needless to say that a pleasant time was enjoyed by all hands as the



SAIL PLAN OF SCHOONER.

captain and his wife are social favorites in Toledo marine circles.





ESTABLISHED 1878.

Published Every Thursday by

THE MARINE RECORD PUBLISHING CO.,

Incorporated.

GEO. L. SMITH, President.

C. E. RUSKIN,	-	-	-	Manager.
CAPT. JOHN SWAINSON,	-	-	-	Editor.
THOS. WILLIAMS, Chicago,	-	-	-	Associate.

CLEVELAND,  
Western Reserve Building.CHICAGO,  
Royal Insurance Building.

## SUBSCRIPTION.

One Copy, one year, postage paid,	-	-	\$2.00.
One Copy, one year, to foreign countries.	-	-	\$3.00.
Invariably in advance.			

## ADVERTISING.

Rates given on application.

All communications should be addressed to the Cleveland office.

THE MARINE RECORD PUBLISHING CO.,

Western Reserve Building, Cleveland, Ohio.

Entered at Cleveland Post-office as Second Class Mail Matter.

CLEVELAND, O., MARCH 25, 1897.

Now that the ore men's syndicate has fallen to pieces, perhaps miners will get their due relative to prices in mining ore.

It is very evident that coal shipments will be more brisk in the early spring than it has been in former seasons. We understand that the bituminous coal supply has given out in the Northwest, therefore, coal must get there.

While we find the Detroit Dry Dock Co. fully open for new work and with several slips vacant, they are more than busy in the engine and boiler works department. It would appear, and in fact it is well known, that Detroit must be paid for its work and it works. There are no better vessels afloat on the lakes today, sail or steam, than those built at Detroit.

In our continued and inclusive articles, being published from week to week relative to the status and original treatment, with foundation of the agreement of reduction of naval forces between Britain and the United States on the lakes, as read before the American Historical Association, we this week print the treaty in full, and, while this question has been given due space in the Record, even in years past, we have never entered into the matter so fully as it is at present being treated. We would therefore suggest that our readers, who desire to be acquainted with the whole phase of the question, to hold each chapter separate, so that in future reference the full gist of the treaty may be fully understood.

We are not much stirred up by the frequent allusions this week to clipper ships in the daily press, as represented by the old box T. F. Oakes, which left Hong Kong about nine months ago, and was towed into New York last week. It would concern Americans very much more if we had actually anything to be proud of on the high seas, and yet we have promulgated the phrase "clipper-ship." It may be understood that commercial results and maritime enterprise no longer admits of the models so recently accredited to American builders. Originally, the word clipper, as we remember it, may thus be defined: "A fast sailer, chiefly applied to the sharp built rakish schooners of the United States, and latterly to the Australian passenger ships which are now superseded by steam, and are entirely out of date relative to the clipper part of it, as vessels are now built to carry all they can on the least daily disbursements, whether in crew wages, fuel or port charges.

## TO WHOM IS THE CREDIT DUE.

The National Board of Steam Navigation seems to have taken over the credit of the Lake Carriers' Association in asserting that several measures before Congress has been influenced in behalf of their representations instead of duly awarding the contest to where it actually belongs.

There would seem to be a connection between the lakes, ocean and coast trades, but the fact remains that each are very much distinct from one another and there is no logical conclusion which we can see that will alter the conditions that exist at present relative to this trade.

In this connection we cite the President's report of the twenty-fifth annual meeting of the National Board of Steam Navigation, held recently at St. Louis, wherein he recites that the Board of Steam Navigation assert that they have been the chief factors in upholding work which actually was carried on by the Lake Carriers' Association and formerly by the Cleveland Vessel Owners' Association, and carried to a successful conclusion by the above named bodies.

In this the Eastern associations are taking too much upon themselves and then do not follow out their bill relative to the general improvement of the United States Mercantile Marine, in asserting or taking upon themselves all of the credit.

However, there is nothing like a combined effort and when persisted in is sure to lead to good results.

To come back to our subject, the president of the National Board of Steam Navigation says we have prevented obnoxious laws that were detrimental to the marine interests from being passed, and always guarded with jealous care everything beneficial to and for the good of steam vessel owners.

The executive committee has at all times watched proposed legislation and appeared before the various committees in Washington, explaining the wants and grievances as they may have been, in order to secure the best results.

Among the many things that have been accomplished are the abolishment of the hospital tax, to which every steamboatman, be he captain or deckhand, was obliged, as you are aware, to contribute forty cents per month for hospital dues.

All steamboatmen remember well how at each annual inspection they were charged per ton for such inspection, and this item alone was a burden to ship owners.

The great saving in officers' license is another notable relief to steamboatmen. You recollect how recently it cost each officer \$10 per annum for his licenses.

The Personal Liability bill, which the National Board was the means of having passed in Congress, has done more for the shipping interests of the United States than any other bill that has been passed for the marine interests. It has removed the individual liability of the ship owner from being responsible for more than the amount of his interest in that vessel. Previous to the passage of this bill, it was almost impossible to find capital willing to invest in steam vessels, because of the liability attached to their interest, and the possibility of their entire fortune being swept away, although possibly the owner of the smallest interest. Had the National Board accomplished but this one act, it is worth all the money that has been expended by the board.

The influence of the board has also increased the number of lighthouse districts. It has stopped the patent right venders from putting clap-trap arrangements on steam vessels, owing to the efforts of able committees that were sent to Washington to protest against all devices that were not for the purpose of saving life and property, and for the actual benefit of vessels. It prevented the passage of the bill that was introduced in the House, requiring barges on the lakes and Long Island Sound to maintain a load line or free board; also the passage of the bill requiring ocean-going steamers to purchase a patent signal light, which was only of benefit to the patent right venders. It regulated the anchorage of vessels in the harbor of New York, and had passed other laws that were of advantage, and those that were not, they had killed by their influence in the committee rooms.

It is at present working on the Libel law, and I believe that only owing to the great number of bills before Congress during the last session, they would have accom-

plished something that would be beneficial to the vessel owners of this country. I feel satisfied that in the next Congress the Libel law will be amended.

This Board strongly recommends the removal of tolls of all kind from commerce of every waterway in this country.

From this brief review of the great benefits achieved by the board to vessel owners it does not seem presumptuous to believe that when the executive committee of the National Board of Steam Navigation appears before congressional committees, advocating the framing of advantageous legislation, or to condemn unwise laws detrimental to marine regulations, or patentees preying on marine interests, Congressmen will then well know that the vessel owners of the United States are in accord with the National Board's committee before them.

From the foregoing it would appear as if this board has been doing all for the benefit of the United States Mercantile Marine, whereas other bodies are still more earnestly engaged in prosecuting each avenue trending towards the higher and better development of the service.

## MARITIME LIEN.

In a recent supreme court decision Mr. Justice Harlan ruled as follows: "A maritime lien on a vessel is not created by supplying coal to it on the order of a charterer, without any order of the master or his expressed consent. Where the charterer was required by the charter to provide and pay for the coal, and had an office at the port of supply so that the party providing it could easily have ascertained the ownership of the vessel and the relation of the charterer to it, although he acted, in fact, on the belief that the vessel was responsible. In the above case orders for fuel were given by the New York Steamship Company, a New Jersey corporation engaged in business at the city of New York. The vessel herself was registered at Wilmington, North Carolina, but was owned by citizens of New York. The fuel was necessary to enable her to make regular trips from New York to and from the ports of Maine, and orders for same in some instances were sent direct by mail; in others, through a broker, either by the general manager of the company or by the dock superintendent. In summing up this important case Mr. Justice Harlan further stated that under the circumstances, if under any, a charterer who has control and possession of a vessel under a charter requiring him, at his own cost, to provide for necessary supplies and repairs, may pledge the credit of the vessel, it is not necessary now to determine, we mean only to decide, at this time, that one furnishing supplies and making repairs on the order simply of a person or corporation acquiring the control and possession of a vessel under such a charter party, can not acquire a maritime lien of the circumstances attending the transaction put him on inquiry as to the existence and terms of such charter party; but he failed to make inquiry, and chose to act on a mere belief that a vessel would be liable for his claim. A similar decision and also on the question of payment for fuel was decided in the same way a few years ago in the case of certain lake tonnage. And all must agree that it is a most righteous and equitable rendering of the facts brought out in evidence taken before the court.

## CANADIAN TRANS-ATLANTIC SERVICE.

After years of agitation Canada is about to have a fast line of steamers that will prove formidable competitors of the best that now make New York their terminus. It is announced on what appears to be official authority that the Canadian Government has awarded a contract for a period of 10 years to the English firm of Peterson, Tait & Co., of Newcastle, to place on the route between Montreal and Liverpool four steamships of 10,000 tons each and a speed slightly exceeding 21 knots. Two of the new boats are to be ready for the beginning of the season of 1899 and the other in 1900. They are to have 50 per cent more accommodation for passengers than the greyhounds of the Cunard line, the Lucania and Campania, and 50 per cent more promenade accommodation, while they will be also superior to them in their appointments and equipment. They will be further supplied with cold storage accommodation to the extent of 500 tons, which, however, if needed, is to be subject to increase to 1,000 tons at the demand of the government.

The boats will run from Montreal, or possibly Quebec, to Liverpool in the summer, and from Halifax in the



winter. W. Peterson, of the English firm mentioned, has been in Canada for two weeks, in consultation with the Dominion Government on the matter. It is said the annual subsidy to be paid by the Dominion is \$500,000, to which the imperial government will add \$250,000. It is stated that the Dominion Government, in addition to entering into an arrangement for a fast Atlantic steamship service, intends deepening the St. Lawrence Canals to a uniform depth of 14 feet, the work to be completed within two years.

#### MODERN PORTERAGE.

A few years ago the idea of loading a vessel with 2,500 tons of flour in twenty-four hours by means of two small motors would have been looked upon as absurd. This was done recently in Tacoma. Two thousand tons of cargo has frequently been loaded or discharged in a day by steam power, but the important factor in the record-breaking achievement at Tacoma was that the conveyor was worked by electricity. With the apparatus which has been designed for this purpose, flour and grain can be loaded at any stage of the tide, and independently of the weather. If it should rain a canvas is quickly spread from the door of the warehouse to the ship's hatch. With the system of loading ordinarily used eighteen men are required to do the work of one electric conveyor, with which the bags are delivered into a ship's hold at the rate of 2,500 to 2,700 pounds a minute, or 75 tons an hour. When extra speed is desired, two conveyors are employed. This was done when the record of 2,500 tons in twenty-four hours was made. The electric conveyor is 40 feet long. It is moved at will on two wheels in the center. A two-horse power motor supplies the power, the current being taken from the nearest electric wires. The sacks are placed on a revolving belt of rubber, which passes over twelve rollers. The belt is propelled by a driving wheel, attached to the side of the apparatus. The rollers are placed close enough together, and the belt revolves at sufficient speed to carry all the weight in flour or grain that can be placed upon it. The conveyor works as well when placed at an angle of 45 degrees as when on a level.

The excellent and conservative letter of Mr. Frank J. Firth, published in our issue of March 18th, is worthy of the most careful perusal and consideration of those interested in the upbuilding and ultimate supremacy of the United States Merchant Marine. There may be various methods of arriving at the desired point, and Mr. Firth conforms with other citizens' wishes to arrive at the best and most practical form of reaching what we all desire. Hence, his letter in our recent issue is of more than ordinary weight, and carries with it the true ring of American independence from the foreign carrying trade which has usurped our commerce and is endeavoring to drag us down to the level of an insular power.

#### RIVER AND HARBOR IMPROVEMENTS.

Contracts have been awarded for harbor improvements as follows:

Michigan City, St. Joseph, Benton Harbor, South Haven and Saugatuck, to William A. Starkey, of Milwaukee, at 13 cents per cubic yard for dredging, and \$2 per load for towing.

Holland, Grand Haven, Waukegan and White Lake, to the Green Dredging Co., of Chicago, at the same price.

Pentwater, Ludington, Manistee, Portage Lake, Frankfort and Charlevoix, to the Green Bay Dredging & Pile Driving Co., of Green Bay, at 13½ cents for dredging and \$2 a load for towing.

Repairs to piers at Ludington to William Brownrigg, of Manistee, \$8,851.31.

The dredging of Grand River will be done on government account under Capt. Townsend's direction, the bids submitted for the dredge is now at Grand Haven, and work will be commenced April 1 at the Grand Haven end.

A bill which passed Congress this week, contains the appropriation of \$470,000 for the improvement of the Keweenaw Point harbor, and the \$150,000 for surveys on the deep waterways canal from the lakes to the sea, as recommended by the committee appointed to consider the matter. The committee, it will be remembered, met in Detroit and recommended the appropriation of \$600,000 in four separate bills.

#### REVENUE CUTTERS.

The only bidders on the two revenue cutters, to be built for lake service, was the Globe Iron Works Co., Cleveland.

The bid has not yet been passed upon by the Treasury officials, but probably will be this week. It is likely that some modifications will be made in the specifications in order that the expense of construction may be reduced. Mr. Ireland, for the Globe Iron Works, discussed this point with Captain Shoemaker, and they reached an agreement as to modifications of the specifications which will enable the company to build the vessels for about \$193,000 each. This will leave the Treasury Department a sufficient amount out of the appropriation of \$400,000 to pay for the expense of inspection. It cost the Globe Iron Works over \$200,000 to build the Gresham, and the company claims to have lost about \$60,000 on that vessel. Treasury officials are of the opinion, however, that the company's bid on the new vessels will enable it to clear some money. The proposed cutters are almost exact duplicates of the Gresham and on models alone a large amount of money will be saved."

The new vessels will be all steel steamers, modeled after the cruiser Yorktown, one of the handsomest vessels of the United States navy. Their general dimensions will be: Length over all, 205 feet 6 inches; length between perpendiculars, 188 feet; beam, molded, 32 feet; depth of hold, 17 feet; displacement, 927 tons. They will be single screw boats, and propellers will be ten feet in

protect the machinery and magazines if fired upon. There will also be an armory on each boat, fitted out with a full complement of small arms, such as rifles, cutlasses and pistols.

The cutters will also be so constructed that in case of need a battery, which may be kept at some convenient port, may be shipped aboard and prepared for action with little delay, and they have been designed of a convenient size to pass readily through the canals by the Niagara and St. Lawrence falls, so that they can be sent to sea on short notice. In every respect, they will be thorough sea-going vessels, and could be transformed into armed commerce destroyers of a very formidable type.

#### LLOYDS.

Buffalo, N. Y., March 23, 1897.

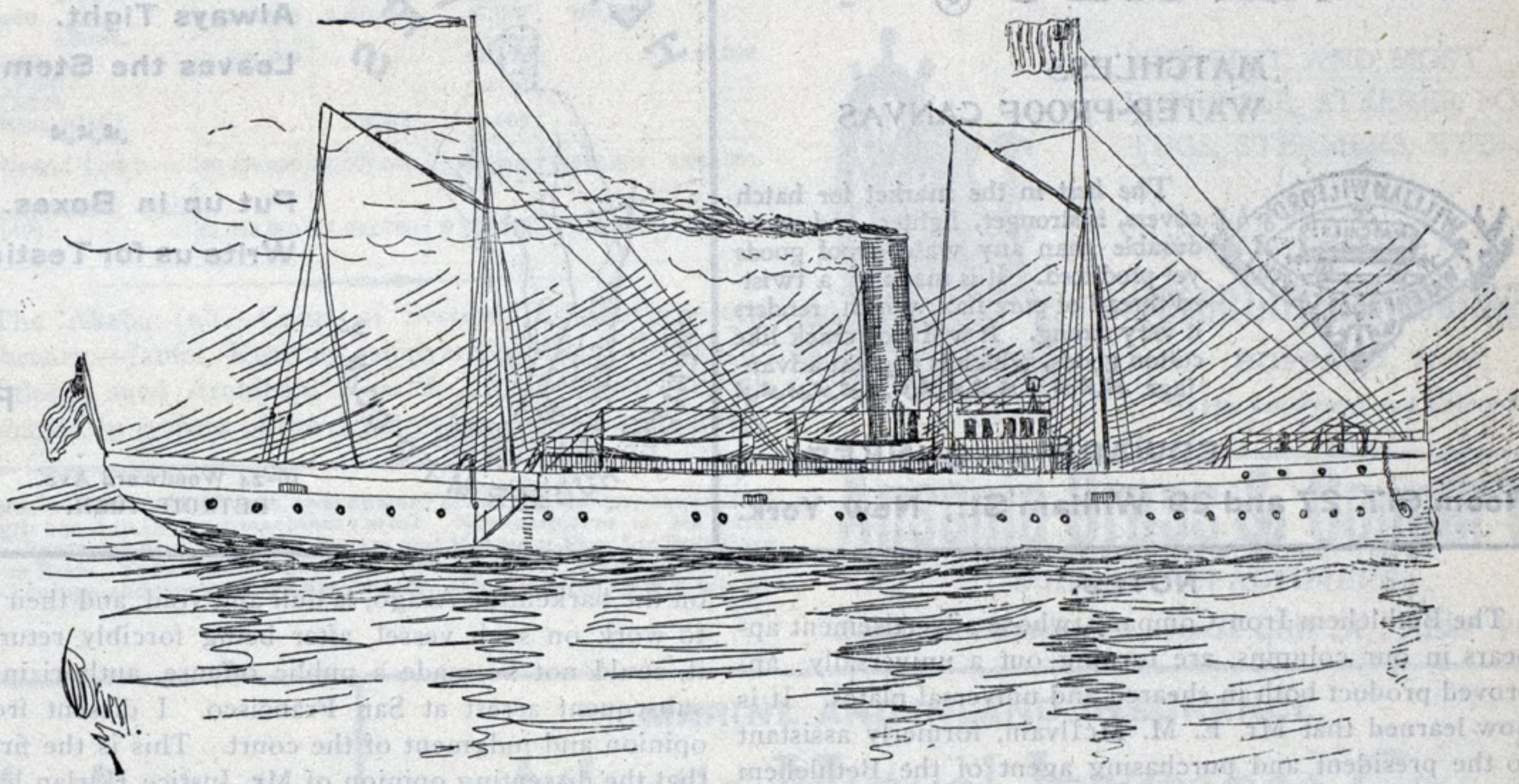
Editor Marine Record:

I write to ask what do you mean by Lloyd's in connection with marine insurance business. There seems to me to be Lloyd's and Lloyd's, fire, house, life, stationary and other kinds, including casualty. Will you give us an expression of opinion through the columns of the excellent old Record.

Yours truly, an old subscriber,

D. N. S.

In reply, we may say that Lloyd's, an establishment which, from a small London coffee house, wherein merchants met, has now grown to a society which has transacted the bulk of marine insurance business for nearly four hundred years. The present underwriters have a



MODEL OF THE NEW REVENUE CUTTERS FOR THE LAKES.

diameter of the four-blade type, made of manganese of bronze.

They will be required to develop a speed of seventeen knots in deep water. The power for each will be derived from a single engine of the vertical, inverted cylinder, direct acting triple expansion type, having one high pressure cylinder twenty-five inches in diameter, a medium pressure cylinder thirty-seven and one-half inches in diameter, and a low pressure cylinder fifty-six and one-half inches in diameter. Steam will be supplied from four steel water tube boilers, each fired at both ends, and with 160 pounds working pressure. Two thousand four hundred horse power is expected to be developed.

The new cutters will be schooner rigged, as shown in our illustration, with two masts of Oregon pine, each eighty-nine feet high and eighteen inches in diameter. The masts will be in one piece, and will be about as large as any single spars ever seen on the lakes. The hulls will be painted white, and there will be ornamental carvings at the bows and sterns. They will carry six boats and a steam launch.

Each vessel will be armed with a six-pound rapid fire gun mounted amidships. In addition to this, they will be provided with torpedo tubes projecting through the stem below the water line. This is a feature that has not been seen on fresh water in the United States, and may prove of value in the event of war. A magazine, provided with mechanism for flooding it in case of danger of explosion, will occupy a large part of the interior of each cutter, while the coal bunkers will be so arranged as to

record of each ship, her construction, equipment, where built, under whose command, nationality, state of repair, general character, etc. The name, or title of Lloyd's, has been somewhat misused in the United States lately, or during the past few years, possibly on account of the reputation of the ancient firm; but we are not aware that the underwriters at Lloyd's, England, will not insure or indemnify an assured against losses, such as you mention, although marine insurance is the principal line taken up at Lloyd's, as you may have noticed time and again in the Record columns.

#### OBITUARY.

(CAPT. MARTIN.)

The death is announced at Milwaukee of Capt. James W. Martin, late superintendent of the Flint & Pere Marquette R. R. steamers on Lake Michigan, which runs between Milwaukee, Manitowoc, South Chicago and Ludington. His passing away was sudden, due to an attack of pneumonia, the result of a cold brought on through exposure. Capt. Martin was a native of Milwaukee, and but 41 years of age at his death. When quite young he entered the service and was known at every port on Lake Michigan. He bought an interest in the steamer Roanoke and sailed her a number of years, and at one time was interested in a Chicago tug line. He is survived by a widow and two sons. Capt. Martin stood high in the estimation of the railroad people, and his ideas on the matter of management of the steamboat line were always followed, for they proved fruitful of economy and effective service.



## Engine Cylinders FOR SALE.

Pair of 18x34x34 stroke steeple compound engine cylinders, complete with steam reverse link and sword arm, 6 throttle valve, exhaust shift valve, etc. Built for compounding an engine, but never used on account of change of ownership, lack of funds, etc. For full particulars address E, care of the MARINE RECORD.

# F. W. WHEELER & COMPANY,

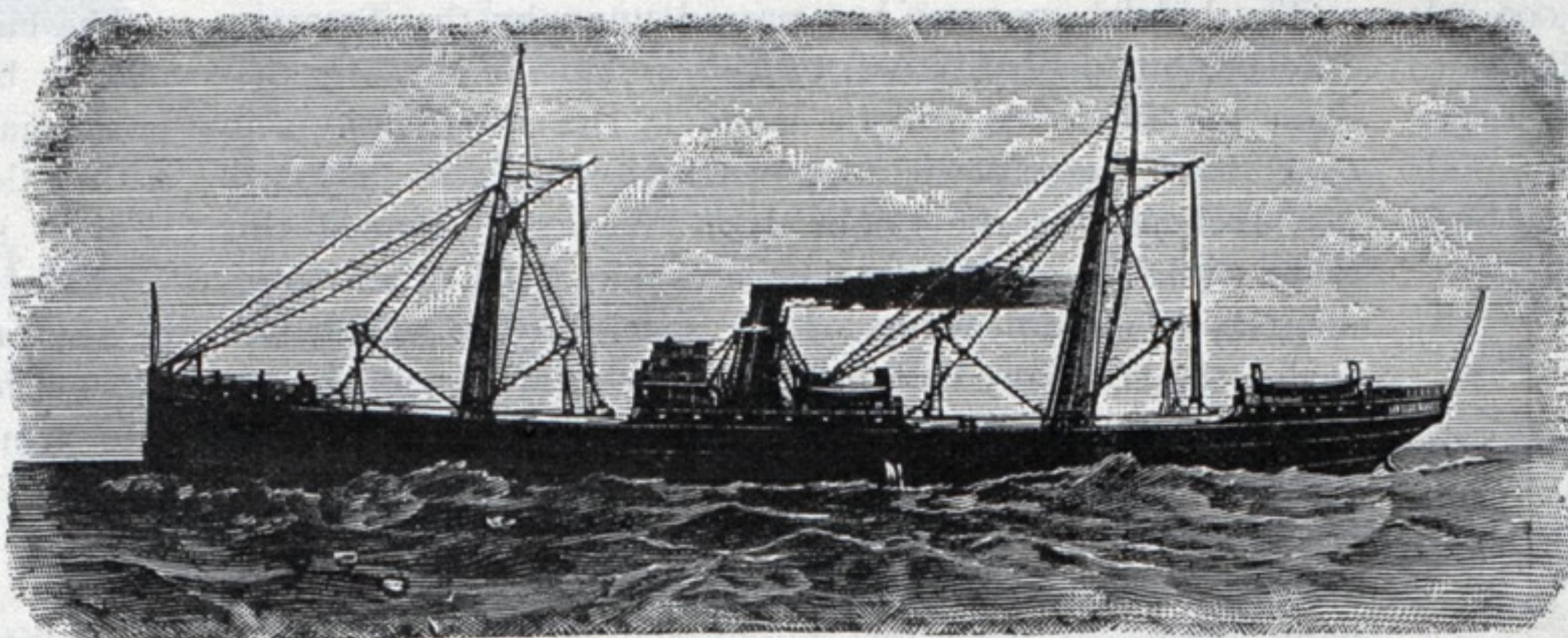
BUILDERS OF ALL KINDS OF

**Iron, Steel, and  
Wooden Ships**

FOR LAKE OR OCEAN SERVICE.

**West Bay City, Mich.**

F. W. WHEELER, Pres. H. T. WICKES, V. P.  
J. S. PORTER, Treas. C. W. STIVER, Sec'y.



# FRONTIER

**Iron Works.**

MARINE ENGINES.

**DETROIT, MICH.**

## WM. WILFORD'S

**MATCHLESS  
WATER-PROOF CANVAS**



The best in the market for hatch covers, is stronger, lighter, and more durable than any water-proof goods yet produced. It is made of a twisted thread of pure flax, which renders it very strong. It will not crack like cotton goods, which is a great advantage.

**EDWARD A. BUNKER,**

Room 617 27 and 29 William St., New York.

**HERCULES**



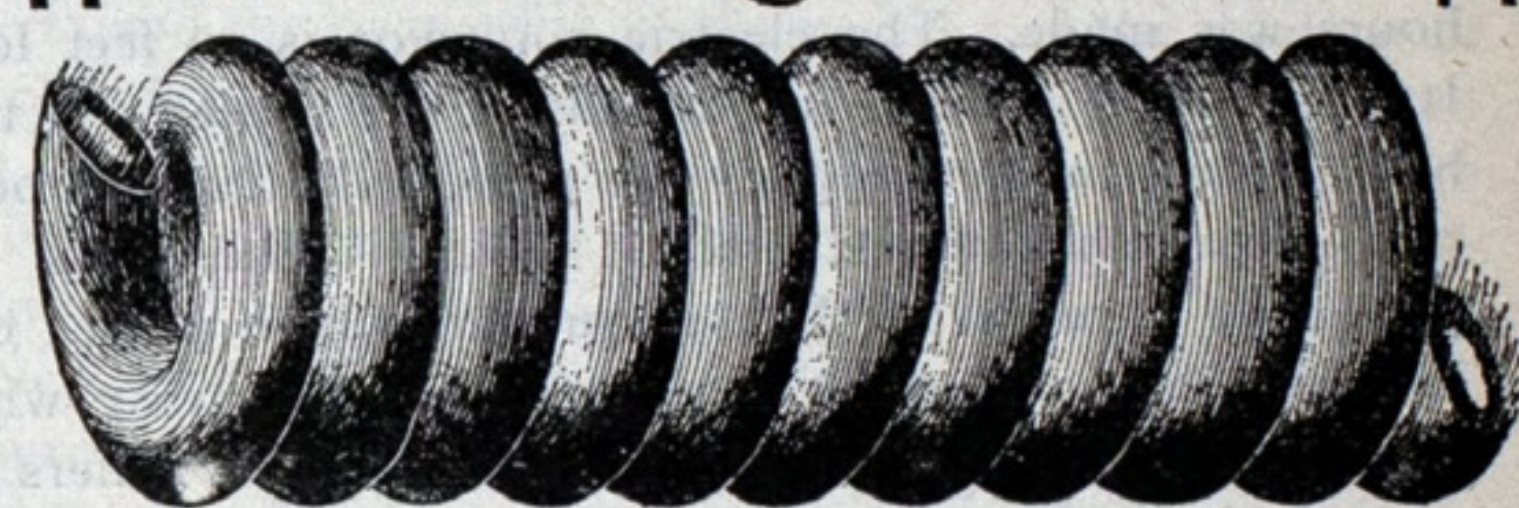
**PEERLESS RUBBER MFG CO. N.Y.**

**Always Tight.  
Leaves the Stem Clean.**

**Put up in Boxes.  
Write us for Testimonials.**

16-24 Woodward Ave.,  
DETROIT, MICH.

## HERCULES COMBINATION



## METALLIC STOP VALVE PACKING

Patented and Manufactured Exclusively by  
**PEERLESS RUBBER MFG. CO.,**  
16 Warren Street, New York.

193-195 Bank St.,  
CLEVELAND, O.

202-210 S. Water St.,  
CHICAGO, ILL.

### NOTES.

The Bethlehem Iron Company, whose advertisement appears in our columns, are turning out a universally approved product both in sheared and universal plates. It is now learned that Mr. E. M. McIlvain, formerly assistant to the president and purchasing agent of the Bethlehem Iron Company, has been appointed acting general sales-agent of the company, with headquarters at South Bethlehem, Pa.

Among the prominent industries of the country may be mentioned that of the Electric-Dynamic Company, Philadelphia. We, of course, allude principally to the industries, a lamartime, as the above firm have supplied portable electric drill motors to most of the prominent shipyards, notably, the Cramps, Newport News, Union Iron Works, rescent, Brooklyn Navy Yard, as well as complete electrical equipments for the American line to the St. Louis and St. Paul and other ships of the line, making a total of 22 direct coupled dynamos, aggregating about 15,000 lights. In the matter of lighting fancy tonnage such as the yachts Columbia, Thespia, Rambler, Enterprise, and others, the Electro-Dynamic Company seem to lead in the installation, variegation of colors and general efficiency of their plants.

It has recently been widely printed that the arrest and imprisonment of seamen for refusing duty or desertion during the course of a voyage has been upheld in a decision of the District Court for the Northern District of California. It is but just to state that such a rendering was made by Mr. Justice Brown; but an equally eminent jurist, Mr. Justice Harlan, dissented and stated that in his judgment the holding of any person in custody, whether in jail or by an officer of the law, against his will, for the purpose of compelling him to render personal service to another in a private business, places the person so held in custody in a condition of involuntary servitude forbidden by the Constitution of the United States; consequently that the statute as it now is, and under which the appellants were arrested at Astoria and placed against their will

on the barkentine Arago, is null and void, and their refusal to work on such vessel, after being forcibly returned to it, could not be made a public offense, authorizing their subsequent arrest at San Francisco. I dissent from the opinion and judgment of the court. This is the first time that the dissenting opinion of Mr. Justice Harlan has been given that due publicity to which it is so honestly entitled.

Henry R. Worthington, manufacturer of steam and electric pumping machinery, has recently received a contract from the Newport News Shipbuilding & Dry Dock Co., amounting to \$100,000, covering pumps for the United States battleships Kearsage, Kentucky and Illinois. They are also building pumps and pumping machinery for the United States battleship Alabama, now being constructed by the Wm. Cramp & Sons' Ship and Engine Building Co. The contract for the pumps for this vessel amounts to \$33,000. The company have just completed and delivered the hydraulic machinery for operating the turrets on the United States battleship Iowa. They have more recently received a contract amounting to \$15,000 covering the pumps required for the armored cruiser being built by the Wm. Cramp & Sons' Ship & Engine Building Co. for the Japanese government. The Yoshi-No, another Japanese cruiser, is already fitted out with a full complement of Worthington pumps. The fact that with few exceptions all British and other foreign war vessels are equipped with these machines simply adds another testimonial to the high efficiency of the Worthington Duplex Steam Pump.

The finger of science points to Graphite paint as the paint of the future for the protection of all exposed iron and metal work. Prof. Cpenrath, Director of the Technical School of Aix-la-Chapelle, lately won the \$2,000 prize offered by the Society for the Advancement of the Industrial Arts for the best essay on Protective Paints. The prize was not won simply by theoretical demonstrations, although the professor furnished scientific reasons also, but by most carefully conducted practical experiments with various pigments and oils, covering several

years' time. The results demonstrated that a properly made paint of graphite and boiled linseed oil is the most suitable for protecting structural iron work, roofs, etc., exposed to the destructive agencies of heat, cold, storms, etc. Running parallel with these results are the facts demonstrated by those who have used Dixon's Silica Graphite Paint during the past 30 years. Roofs and iron work properly painted with Dixon's paint have not required repainting in 15 to 20 years. As the season for painting is now close at hand it may pay those interested to write to the Joseph Dixon Crucible Co., Jersey City, N. J., for circulars.

### TACOMA COMMERCE.

Harmormaster Clift makes the following report of the ocean commerce at the port of Tacoma for the month of February, 1897:

Imports.	Value.
Merchanidse from China and Japan.....	\$ 613,018 85
Previously reported .....	778,310 26
Total imports two months.....	\$1,391,329 11
Same period last year .....	675,000 00
Increase over last year.....	\$ 716,329 11
Exports.	Value.
Flour, 22,420 barrels.....	\$ 94,250 00
Lumber, 7,698,669 feet.....	68,980 00
Coal, 26,113 tons.....	86,461 00
Wheat, 1,215 bushels.....	1,033 00
Merchandise to China and Japan.....	361,053 00
Merchandise to British Columbia.....	31,710 00
Total .....	\$ 644,087 00
Previously reported .....	599,128 67
Total exports two months .....	\$1,243,215 67
Same period last year.....	1,357,580 00
Decrease from last year .....	\$ 114,364 33
Inward registered tonnage, 37,144; outward registered tonnage, 39,528. Inward cargo tonnage, 4,740; outward cargo tonnage, 46,470. Deep sea arrivals, 27; departures, 31,	



## MARITIME LAW.

## HURLBUT vs. TURNURE.

(District Court, S. D., New York, October 29, 1896.)  
General and Particular Average—Apportionment—Deficient Coal Supply—Hurricane—Port of Distress—Bill of Lading—"Liberty to all."

The steamship D. left Cuba upon a voyage for New York in October, with a half day's less supply of coal than the customary supply, which was for at least 10 days; she met a hurricane on the voyage, and was obliged to put into Newport News for coal, after 12 days, during which time she had been obliged to consume ship's material to the amount of about \$900 in value, and sugar amounting, with damage to other sugar, to \$3,293. A clause in the bill of lading authorized the vessel "to call at any port or ports for whatever purpose;" Held (1) that the bill of lading clause did not release the vessel from the duty of taking in the customary supply of coal for the whole voyage to New York; nor from the consequences of her failure to do so; (2) that the ship must therefore bear as particular average the damage caused by her failure to take the customary supply, including the expense of putting into Newport News and the loss of ship's material and sugar during the time that the coal that she ought to have taken would have lasted, but not for any longer period; (3) that the residue of the loss of ship's material and sugar, which in this case amounted to four-fifths of the whole, was owing to the hurricane alone, and being in no way consequent on the short supply, was a general average charge, for which the defendant as one of the cargo owners should bear his proportion.—Brown District Judge.

Engineering achievements and possibilities, from the modern point of view, are receiving an additional illustration in the case of the projected tunnel between the mainland of Italy and the island of Sicily, plans and details of which, in model, as executed by the Italian civil engineer, de Johannis, have attracted much attention at the University of Padua. The principle employed in this project is described as that of boring in parabolic spiral lines. After thorough and careful studies of the Strait of Messina, its varying depths, the nature of the ground, and of all other conditions which might assist or interfere with such an undertaking, de Johannis decided

that the beginning of the tunnel should be near San Giovanni di Sanitello, at the foot of the Aspromonte mountain range, the mouth on the other side to be located on the degli Inglesi plain. The entire tunnel will be nearly two miles long, and will consist in the main of two shafts of about 10,000 feet each, descending at a grade not exceeding thirty-two feet in each 1,000. Such a tunnel is thought preferable to a bridge, that would involve such a great span and wind exposure.

## VISIBLE SUPPLY OF GRAIN.

As compiled for The Marine Record by George F. Stone, Secretary Chicago Board of Trade.

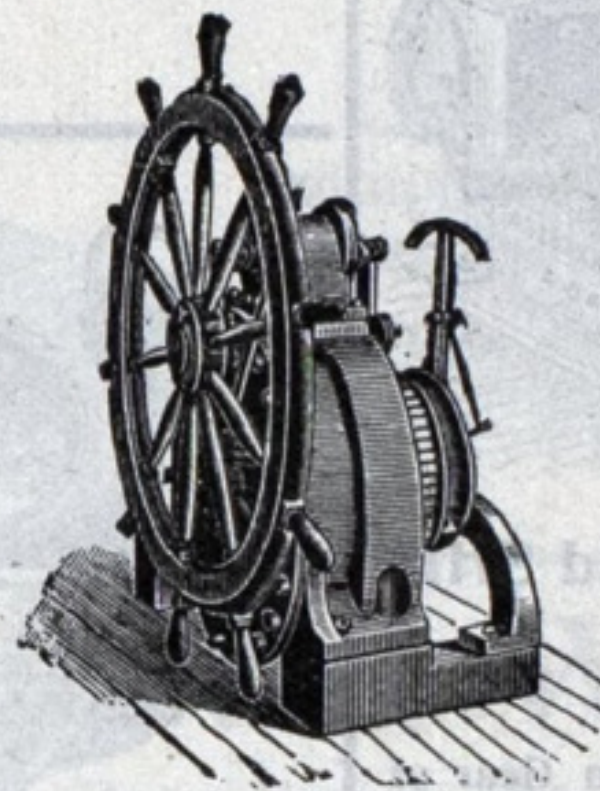
CITIES WHERE STORED.	WHEAT, Bushels.	CORN, Bushels.	OATS, Bushels.	RYE, Bushels.	BARLEY, Bushels.
Albany		40,000	100,000		15,000
Baltimore	570,000	2,077,000	232,000	89,000	
Boston	690,000	1,073,000	233,000	1,000	
Buffalo	990,000	112,000	183,000	97,000	803,000
" afloat	200,000	225,000	81,000	95,000	
Chicago	10,538,000	7,718,000	6,034,000	1,328,000	157,000
" afloat	324,000	3,814,000	618,000	194,000	97,000
Cincinnati		9,000			98,000
Detroit	286,000	90,000	10,000	40,000	22,000
" afloat					
Duluth and Superior	5,274,000	47,000	2,068,000	840,000	1,184,000
" afloat	402,000				
Indianapolis	113,000	61,000	2,000		
Kansas City	329,000	163,000	176,000	7,000	
Milwaukee	246,000	3,000	11,000	466,000	101,000
" afloat					95,000
Minneapolis	15,218,000	84,000	932,000	24,000	98,000
Montreal	472,000	22,000	665,000	68,000	40,000
New York	2,092,000	4,257,000	1,852,000	282,000	188,000
" afloat	674,000	166,000			63,000
Oswego	16,300				38,000
Peoria	30,000	116,000	83,000	7,000	19,000
Philadelphia	375,000	1,841,000	108,000		
St. Louis	551,000	1,939,000	269,000	20,000	4,000
" afloat		86,000	86,000		
Toledo	946,000	2,007,000	57,000	100,000	
" afloat					
Toronto	184,000		64,000		46,000
On Canal					
On Lakes					
On Mississippi		136,000	24,000		
Grand Total	40,430,000	26,077,000	13,797,000	3,648,000	3,068,000
Corresponding Date 8196	61,348,000	15,852,000	8,164,000	1,518,000	1,334,000

The Akaba (s.).—Court of Session, Edinburgh, 16th February.—James Kearney, shipyard worker, Greenock, Scotland, sued Archibald Ross & Co. for £500 (\$2,500) damages, in respect of the death of his son, Hug Kearney,

by falling from the mast of the s. s. Akaba, belonging to defendants, on 2nd October, 1895, while lying in New Orleans. Deceased had been sent aloft to reeve a gantline through the sheave-hole at the top of the maintopgallant-masthead, for the purpose of slinging a boatswain's chair to paint the mast. It was contended that the ship was unseaworthy and defective in her equipment from want of a dummy gantline, and that it was a dangerous and improper piece of work to send a sailor to perform. Defendants pleaded that the action was irrelevant. Sheriff-Substitute Begg had allowed a proof before answer, but on appeal Sheriff Cheyne dismissed the action as irrelevant. Plaintiff appealed. Their Lordships considered it absurd to suggest that it was improper to send a sailor up a mast to reeve a rope, and without calling upon defendant's counsel, they dismissed the appeal, with further expenses to the defendants.

The Roberts Boiler Co. are furnishing the entire machinery for the schooner yacht "Hildegard," which was lately purchased by Vice Commodore Whitlock from Mr. Geo. Gould. Commodore Whitlock was lately elected to his present office by the Atlantic Yacht Club, and he is altering the "Hildegard" to an auxiliary, in accordance with the designs of Mr. Wintringham, the well-known yacht designer. The "Hildegard" was formerly owned by the Prince of Wales.

## Queen City Hydraulic Steerer.



THE BEST AND MOST  
POWERFUL STEERER FOR  
TUGS, STEAMERS, ETC.

MANUFACTURED BY

Queen City Engineering Co.  
BUFFALO, N. Y.

Write for Prices and References.

## TOBIN BRONZE

(Trade-Mark Registered.)

Tensile strength, one inch cold drawn rod, upward of 78,000 lbs. per square inch. Torsional Strength equal to the best machinery steel. Non-corrosive in sea water. Can be forged at cherry red heat. Round, Square and Hexagon Bars for Bolt Forgings, Pump Piston Rods, Yacht Shafts, etc. Spring Wire, Rolled Sheets and Plates for Pump Linings and Condenser Tube Sheets, Centerboards, Fin Keels and Rudders.

## Ansonia Brass &amp; Copper Co.

SOLE MANUFACTURERS,

Send for Pamphlet. 19-21 Cliff St., NEW YORK.

INCORPORATED 1794.

## Insurance Company of North America

CAPITAL, Paid up in Cash, - - - - \$3,000,000.00  
ASSETS, - - - - 9,651,808.08

CHARLES PLATT, President.

EUGENE L. ELLISON, 2d Vice President.

GEORGE H. McFADDEN, Vice President.

GREVILLE E. FRYER, Sec'y and Treas.

JOHN H. ATWOOD, Ass't Sec'y.

LAKE MARINE DEPARTMENT, GEORGE L. McCURDY, MANAGER,  
CHICAGO, ILL.

## Pintsch Gas Lighted Buoys.

Adopted by the English, German, French, Russian, Italian and United States Light-House Departments for channel and harbor lighting; over 500 gas buoys and gas beacons in service.

## Burn Continuously

from 80 to 365 days and nights without attention, and can be seen a distance of six miles.

Brilliant and Steady  
Illumination.  
Economical and Reliable  
in Operation.

CONTROLLED BY THE

Safety Car Heating and Lighting Co.,

160 Broadway, NEW YORK CITY.

MARINE AND INLAND INSURANCE.

## Atlantic Mutual Insurance Co.

Organized 1842.

Office 51 Wall Street, NEW YORK

Insures against Marine and Inland Transportation Risks and issues policies making Loss Payable in England.

Assets over \$10,000,000 for the Security of its policies.

The profits of the Company revert to the assured, and are divided annually upon the premiums terminated during the year; thereby reducing the cost of insurance. For such dividends, certificates are issued bearing interest until ordered to be redeemed, in accordance with the charter.

W. H. H. MOORE, Pres. A. A. RAVEN, V. Pres. F. A. PARSONS, 2d V. P. J. H. CHAPMAN, Sec'y.

NEW YORK.  
PHILADELPHIA.  
BOSTON.

BALTIMORE.  
SAN FRANCISCO.  
NEW ORLEANS.

## Johnson &amp; Higgins,



Average Adjusters,  
And  
Fire and Marine  
Insurance.

Special Facilities for Placing Marine  
Lines.

Guaranty Bldg., BUFFALO, N. Y.

LONG LIFTS. HOT WATER. SIMPLEST AND BEST. WIDE RANGE. LONG SERVICE.

**SELLERS' RESTARTING INJECTOR**

For Stationary, Portable, Traction Engines, Tugboats, &c. Thoroughly Reliable—Perfectly Automatic.

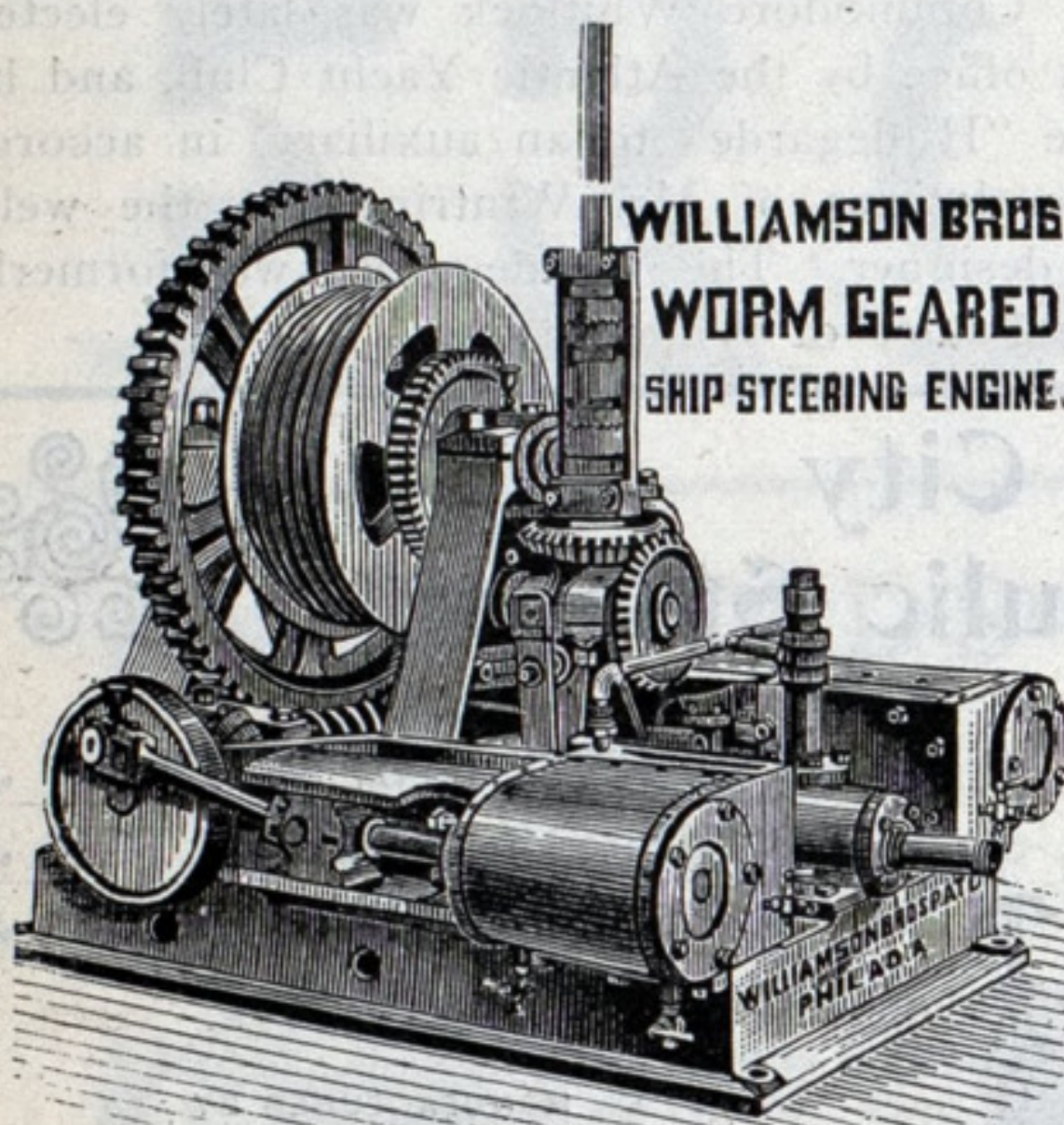
JENKINS BROS., - Selling Agents, NEW YORK, BOSTON, PHILA., CHICAGO.





## WILLIAMSON BROS.,

COR. RICHMOND AND YORK STS.,  
Philadelphia, Pa.



HOISTING ENGINES and SHIP  
STEERING ENGINES.

With either Fractional, Spur or Worm Gear of  
Various Patterns to Suit all Purposes.

ESTABLISHED 1871.

INCORPORATED 1893.

# Montague Iron Works Co.

MANUFACTURERS OF

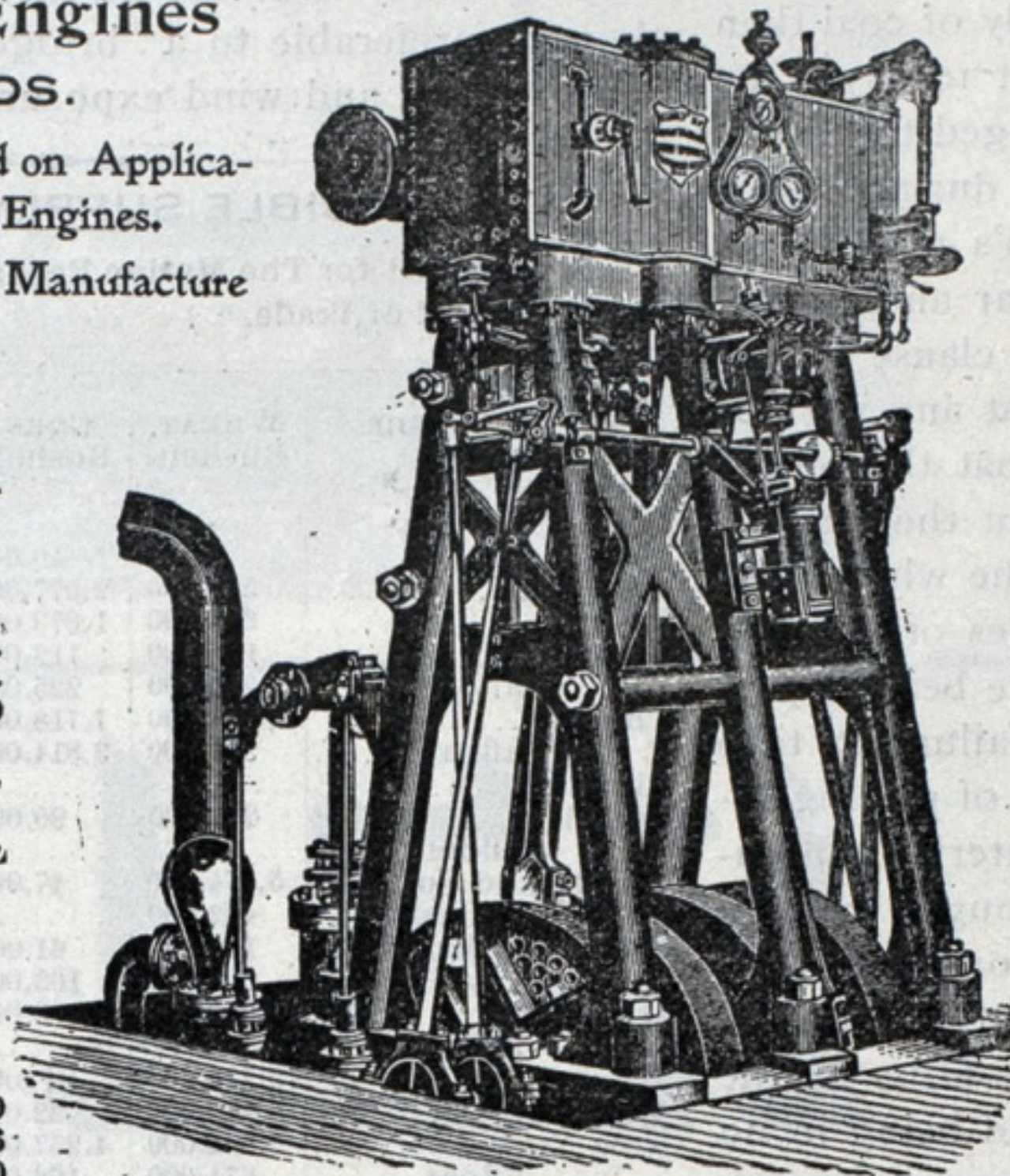
MONTAGUE, MICH.

## Marine and Stationary Engines AND BOILERS OF ALL KINDS.

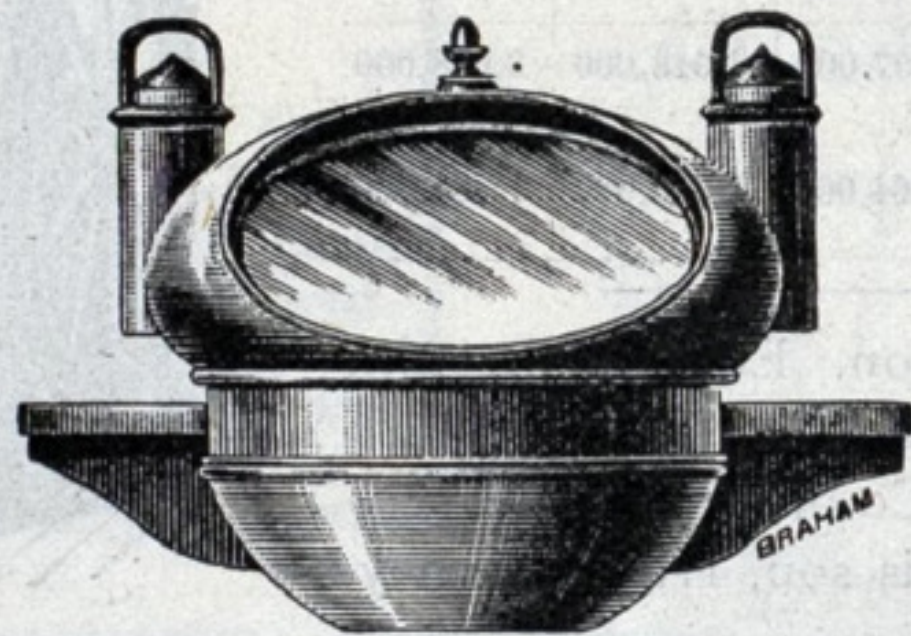
Heavy Castings a Specialty. Prices Quoted on Applica-  
tion. Fore and Aft Compound Marine Engines.

The Engines in the following boats are of our Manufacture

Tug, Hunter, Chicago, 15 and 28x22.  
Tug, Tacoma, Chicago, 16 and 30x24.  
Tug, Zenith, Duluth, 18 and 36x30.  
Steamer Glenn, South Haven, 14 and 28x20.  
U. S. Survey Steamer, W. S. Hancock, 12 and 21x20.  
Steamer Pine Lake, Charlevoix, 16 and 30x24.  
Passenger Steamer Pilgrim, St. Clair, 14 and 28x20.  
Steam Barge Iona, Grand Haven, 24 and 46x42.  
Steam Barge M. T. Greene, Chicago, 20 and 36x36.  
Steamer H. W. Williams, South Haven, 18 and 36x30.  
Steam Barge Mark B. Covell, Manistee, 18 and 30x26.  
Steam Barge Isabella J. Boyce, Michigan City, 19  
and 32x26.  
Steam Barge Luella H. Worthington, Cedar River,  
19 and 36x30.  
Passenger Steamer City of Kalamazoo, South Haven,  
20 and 40x30.  
Steamer Oval Agitator, Chicago, 14 and 28x20.  
Tug E. G. Crosby, Muskegon, 16 and 30x24.  
Tug Peter Coates, Sault Ste. Marie, 10 and 20x16.  
Steamer Lorain L., South Haven, 12 and 21x16.  
Passenger Steamer Lotus, Escanaba, 16 and 30x24.  
Steam Barge Sachem, Grand Haven, 21 and 38x36.  
Passenger Steamer Bon Ami, Saugatuck, 14 and 28x20.  
Steam Barge Charles A. Street, Chicago, 20 and 36x36.  
Steam Barge Edward Buckley, Manistee, 18 and 36x30.  
Passenger Steamer E. G. Maxwell, Pentwater, 14 and 28x20.  
Passenger and Freight Steamer Bon Voyage, Saugatuck, 16 and 30x26.  
Passenger and Freight Steamer Mabel Bradshaw, Muskegon, 16 and 28x26.  
The engraving represents our 20 and 36x36 Fore and Aft Compound Marine Engine. We build them all sizes  
and guarantee them to give satisfaction. Prices furnished on application.



MONTAGUE IRON WORKS CO., Montague, Mich.



## FRANK MORRISON,

and manufacturer of **Compass Adjuster**  
Nautical Instruments

Compasses, Barometers, Patent Logs, Binnacles, Steam  
Gauges, Marine Glasses, Engine Indicators.

All Nautical Instruments Carefully Repaired.

OFFICE WITH UPSON, WALTON & CO., 161 RIVER ST.,  
CLEVELAND, O.

## Marine Engines.

SINGLE and  
COMPOUND.

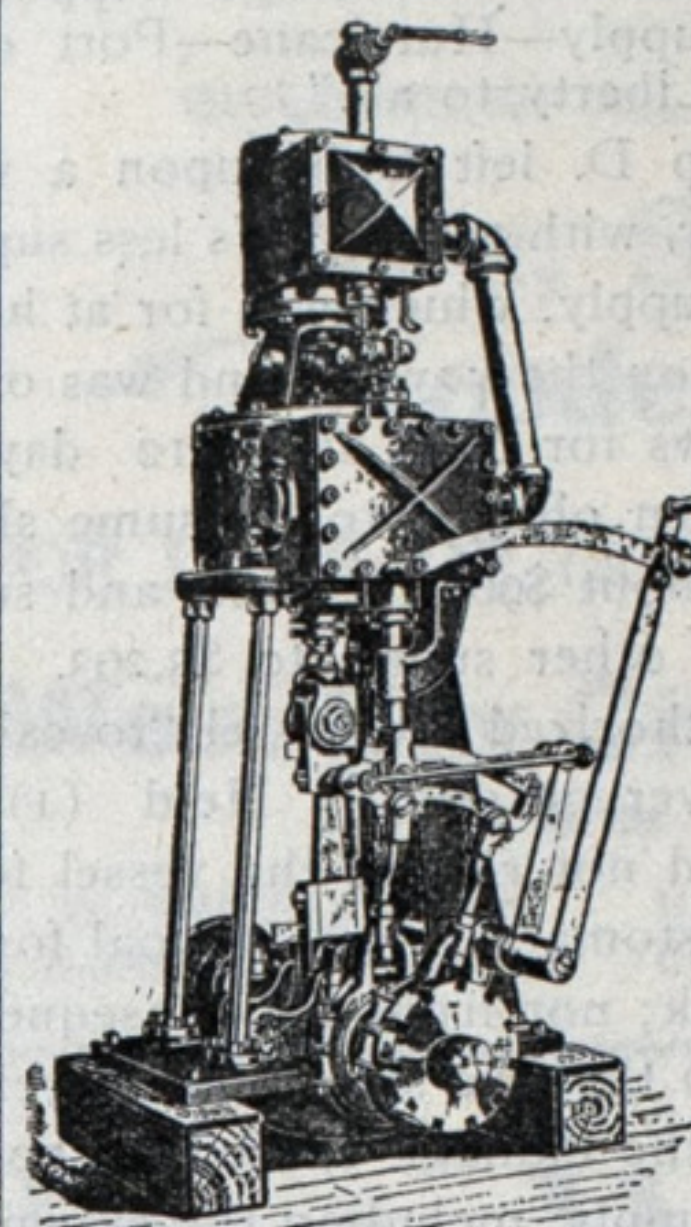
5 to 200 HORSE  
POWER. These en-  
gines are high-class  
in workmanship and  
material and moder-  
ate in price.

Send for cuts, de-  
scription and prices.

## Centrifugal Pumps

For raising coal,  
sand, etc. For dredg-  
ing, wrecking, and  
circulating.

Write for cata-  
logue.



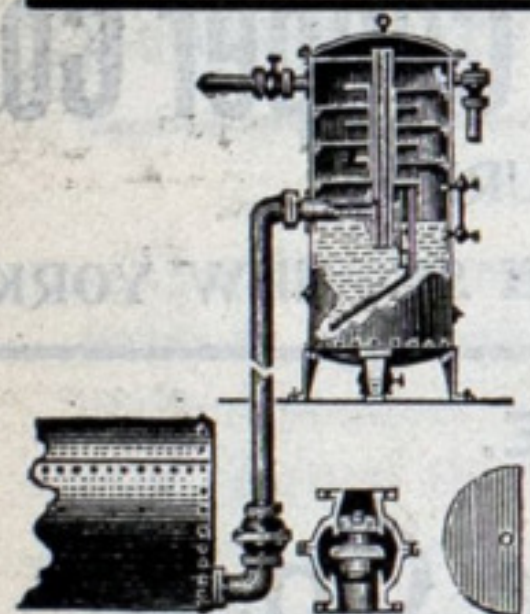
MORRIS MACHINE WORKS,  
Baldwinsville, N. Y.

HENION & HUBBELL, Agts, 61-69 N. Jefferson St.,  
Chicago, Ill.

## Abram Smith & Son, SHIPBUILDERS, ALGONAC, MICH.

WOODEN SHIPS  
OF ANY DESCRIPTION  
BUILT, REBUILT or  
REPAIRED.

Send for Specifications, Prices, Etc Good  
Slips for laying up boats.



## Buffalo Feed Water Heater AND PURIFIER.

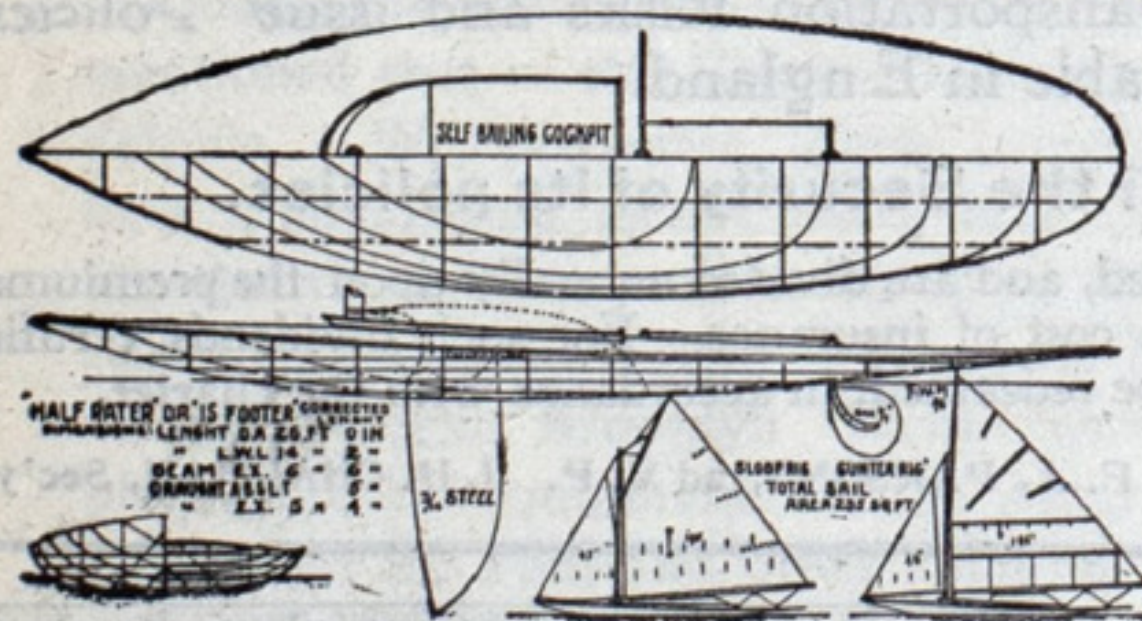
Made in all Sizes and to Suit all Conditions.

ROBERT LEARMONTH,

200 Bouck Ave., BUFFALO, N. Y.

Send for Catalogue.

## Boats for Amateur Builders.



All designs shown in my new "ALBUM OF DE-  
SIGNS" to scale as indexed or enlarged full size  
very cheap.

### SPECIAL DESIGNS TO ORDER.

Patterns, Moulds and Instructions to Amateur  
Builders.

Small Steam and Sailing Craft Built and Rigged  
entirely or in part.

Stems and Stern Posts, Keels, Frames furnished  
worked in the wood. All kinds of boats set up in  
frame and shipped "knockdown" to any part of  
the world.

SEND 50 CENTS FOR 72-PAGE "ALBUM OF DESIGNS."

FRED W. MARTIN, Yacht Designer,

Station "A" Racine, Wis.

## The Cuddy-Mullen Coal Co.

CLEVELAND.

DEALERS IN  
BEST  
GRADES OF  
STEAM COAL.

Special Attention given to Steamboat  
Fueling.

SHIPPING DOCK with Car Dumping Machine, also Eight  
Chutes holding 100 Tons Each, for Rapid Fueling, within  
Eastern Arm of Breakwater, Cleveland.

Steam Lighters, Carrying Derricks, and Large Buckets in operation day and night within  
Cleveland Harbor. Pocket dock at Sandwich on Detroit River, formerly owned by Mullen &  
Gatfield. Pocket dock now under construction on Sault River.

Main Offices, Perry-Payne Bldg., Cleveland, O.

Telephone No. 8.

RIVER DOCK, West River St. Telephone 1441.

## FOR SALE OR TRADE.

25 by 6 ft. Steam Launch. 3 h. p.  
condensing engine, porcupine boiler,  
nickel plated jacket and stack. All  
fittings brass, nickel plated.

Interior finished in mahogany, with  
small toilet room aft. Nothing better  
can be built. Has been kept in good  
repair. Owner building a larger boat.  
For particulars address

H. B. LARSEN, Manistee, Mich.

## A Chance

To prove that we can coal your boats with quick  
despatch and satisfactory fuel, is all we ask.

We have FOUR LARGE CHUTES on our Docks at AMHERSTBURG.

1000 FEET RIVER FRONT  
AND DAY AND NIGHT FORCE.

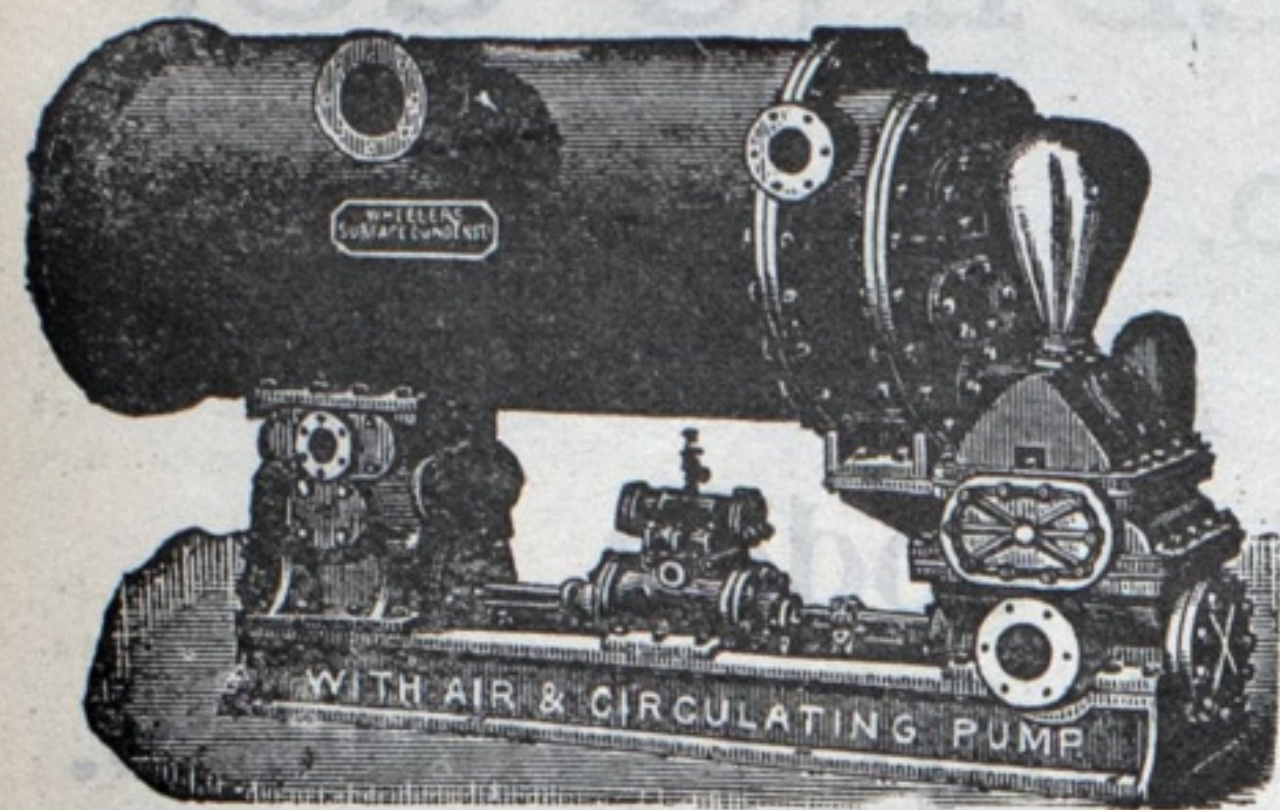
Best Grades of Massillon, Youghiogheny and Hocking  
always on hand.

O. W. SHIPMAN, MAIN OFFICE,  
90 Griswold St. Detroit, Mich.



# WHEELER CONDENSER & ENGINEERING CO.

120 LIBERTY STREET, NEW YORK.



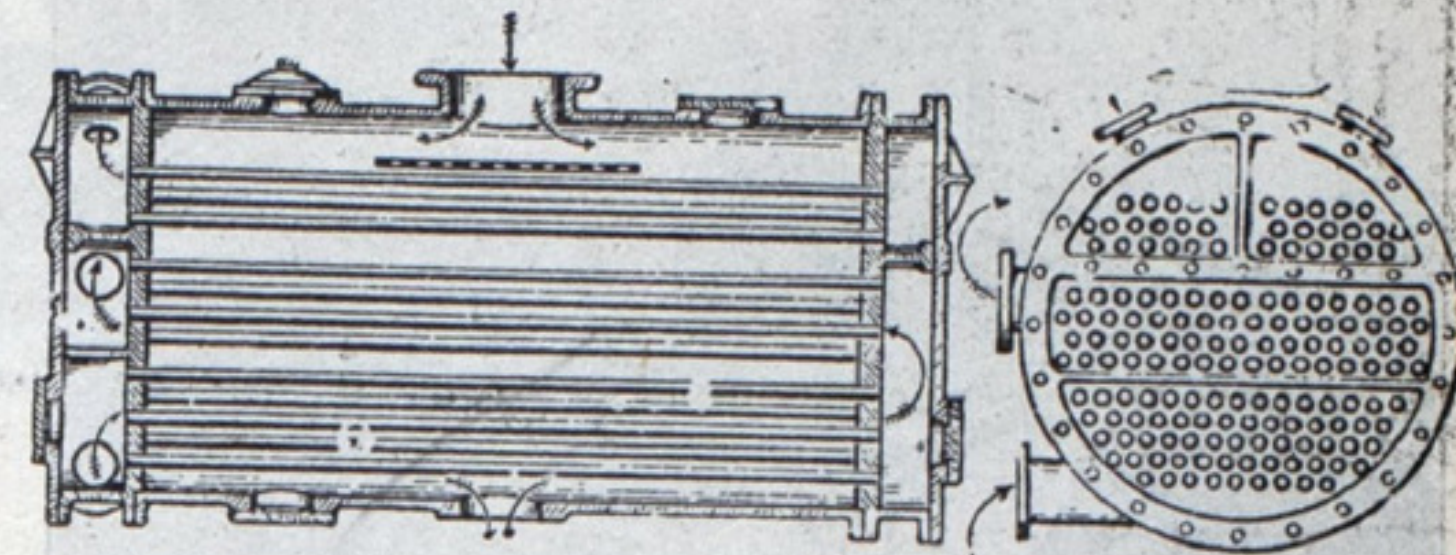
WHEELER SURFACE CONDENSER.  
MOUNTED ON COMBINED AIR AND CIRCULATING PUMPS.

## WHEELER'S IMPROVED SURFACE CONDENSERS

MOUNTED UPON COMBINED AIR AND CIRCULATING PUMPS.

SOLE PROPRIETORS AND MANUFACTURERS OF THE

Wheeler Standard Surface Condenser.  
Wheeler Admiralty Surface Condenser.  
Wheeler Light Hall Surface Condenser.  
Volz Patent Combined Surface Condenser and Feed-Water Heater.  
Wheeler Feed-Water Heater, Air and Circulating Pumps.  
Edmiston Patent Feed-Water Filter.



PATENT COMBINED SURFACE CONDENSER AND FEED-WATER HEATER.

Send for Pamphlet,  
"Machinery for Small Boats, Etc."

## The Chase Machine Co.

MACHINISTS, ENGINEERS, BLACKSMITHS.

MANUFACTURERS OF

## Land and Marine Engines and Steam Pumps.

SOLE OWNERS AND MANUFACTURERS OF THE

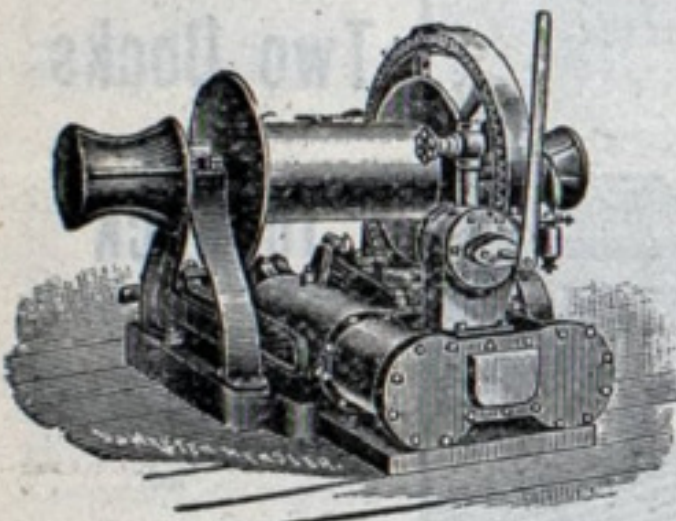
CHASE AUTOMATIC FOG WHISTLE MACHINE.

In use on nearly all Lake Steamers.

AGENTS FOR ASBESTOS STEAM, BOILER AND PIPE COVERING.

Telephone 994.

III Elm St., CLEVELAND, O.



## Dock and Deck Hoists

ALL KINDS OF

Machinery and Friction Hoists.

Send for Prices  
and Circulars.JACKSON & CHURCH,  
Saginaw, Mich.

## John E. Thropp & Sons' Co.

BUILDERS OF

Compound and Triple Expansion

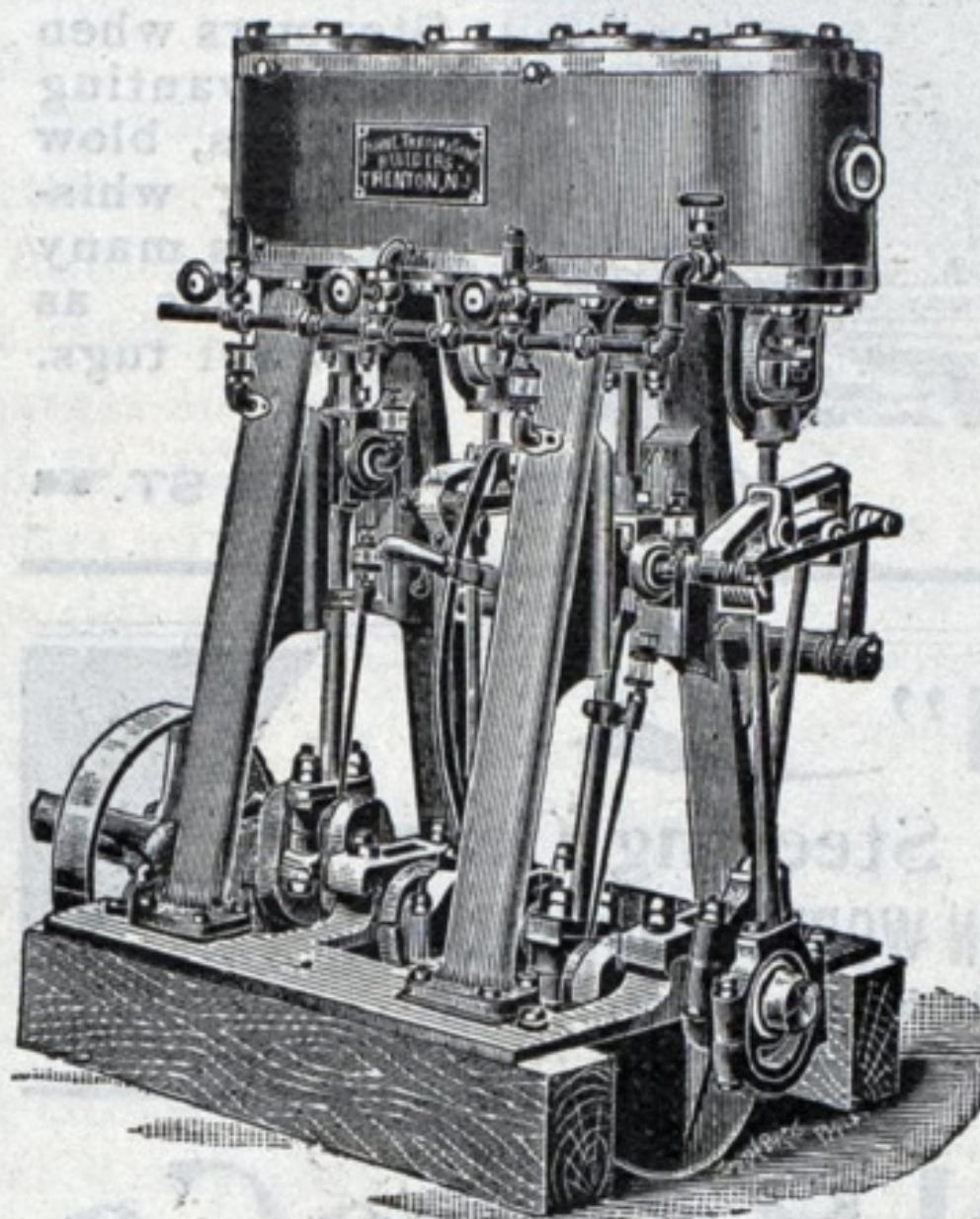
## ENGINES,

Boilers, Surface Condensers, Propeller  
Wheels, Etc.

Contracts taken for yachts and tugs  
complete. Send for photographs of En-  
gines and descriptive pamphlet.

Works on Delaware &amp; Raritan Canal Basin.

TRENTON, N. J.



## Capt. Samuel W. Gould,

Ex-Assistant Inspector of Steam Vessels, 265 Marcy Ave., Cleveland, O.

Gives instruction in Navigation and prepares candidates for the examinations for Master and Pilot's  
Licenses, before the Local Steamboat Inspectors. Also instructions given in the Safety Valve and other  
problems required by candidates for Engineer's License.

TERMS REASONABLE. TAKE WADE PARK OR PAYNE AVE. CAR.

## Eight Elegant Photogravures

Size 10x17 Inches.

Whaleback Str. Christopher Columbus  
State of Ohio & State of New York.  
Steel Ship Builders.  
Steamer Arthur Orr.  
English-built Steamer Turret.  
Dry-Dock Representatives.  
Schooner John Fitzpatrick.

Complete set mailed to any address on receipt  
of 25 cents.

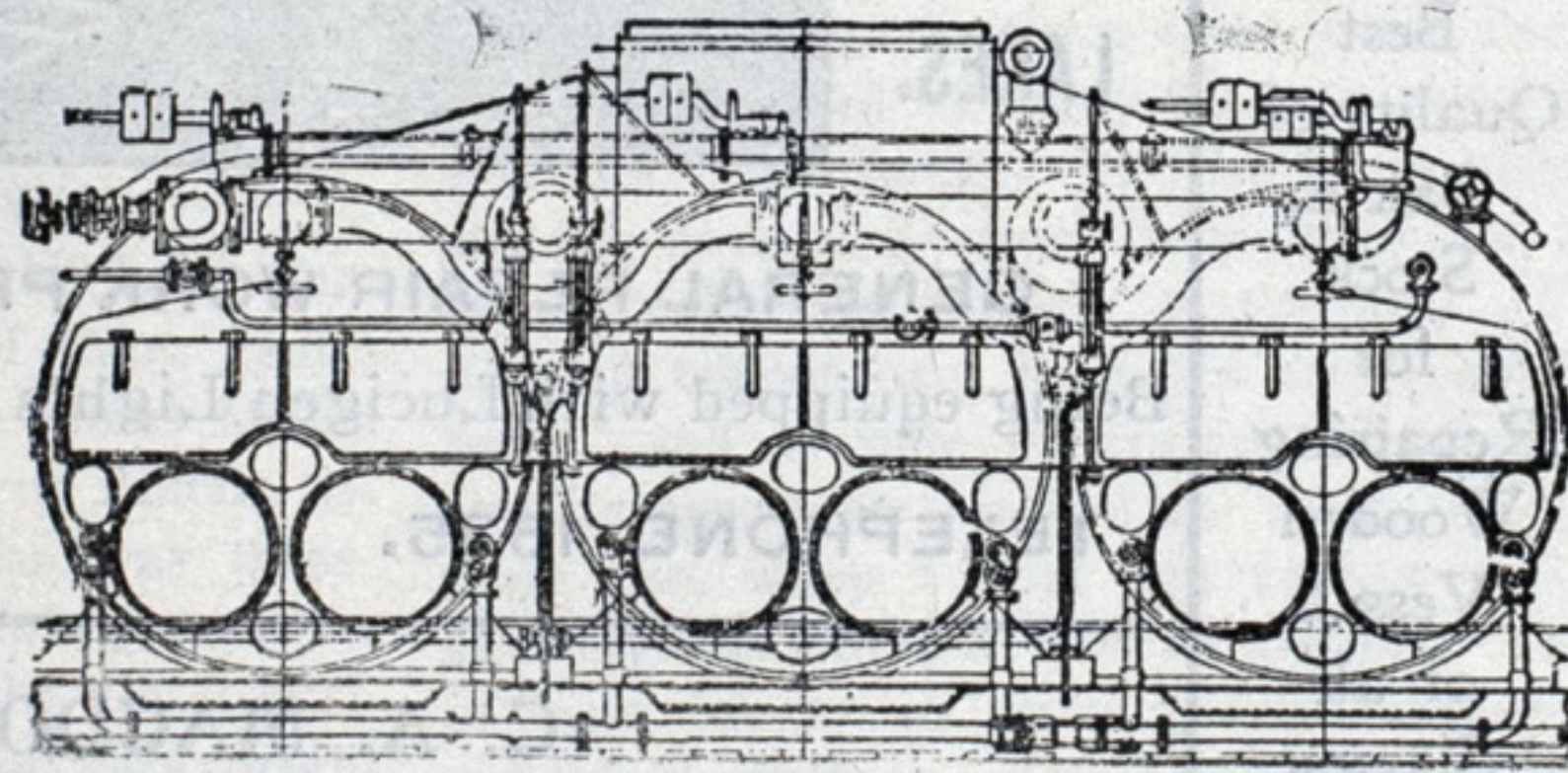
THE MARINE RECORD,

Western Reserve Bldg.,

Cleveland, O.

**\$2.00** Pays for 52 copies of  
The Marine Record in-  
cluding Supplements.

## LAKE ERIE BOILER WORKS



The best equipped  
plant in America for  
the manufacture of  
**MODERN**

**MARINE  
BOILERS.**

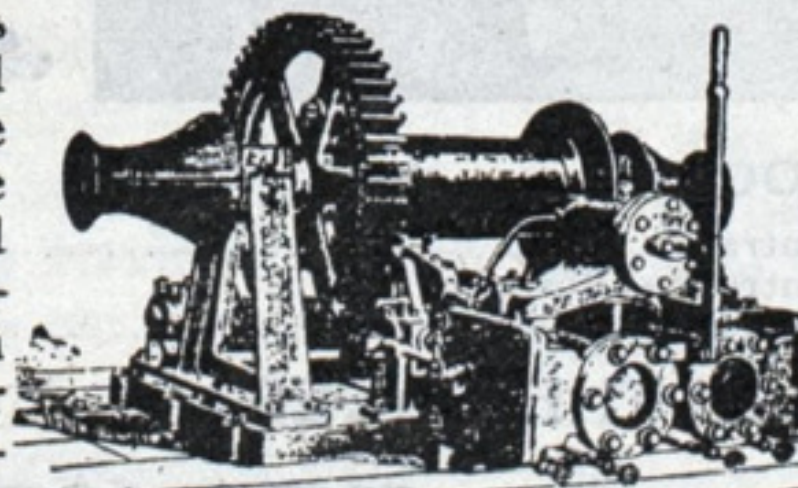
BUFFALO, N. Y.

## HOISTING ...ENGINES



We build them in all sizes  
from new and improved  
designs. Every engine  
thoroughly tested before  
leaving our shop, and  
guaranteed to be satisfac-  
tory in every case. When  
in want of a Hoist for  
marine work, dock work,  
mining or any other pur-  
pose, kindly permit us to name you prices. We know  
we can please you.

MARINE IRON CO.,



BAY CITY, MICH

## FOR SALE, WANTED, Etc.

See also Page 15.

### WANTED.

To trade improved Toledo real estate for  
a good lumber tow barge. Address Box  
48, Sandusky, O. 10-13.

### WANTED.

To buy a freight and passenger steamer  
from 100 to 130 feet long, draft about 8  
feet, speed no less than 12 miles per hour.  
Must be a good bargain. Write and give  
full particulars. Smith Bros., Port Wash-  
ington, Wis. 10-15.

### WANTED.

An 18 or 20-inch double engine, of 24-26 h. p.  
engine in exchange for a 20-inch 36-inch by 30  
inch steeple compound engine. Dry-Dock Iron  
Works, Port Huron, Mich.

### FOR SALE.

Schooner "D. L. Filer." Capacity 500  
M. feet lumber. Can be seen any time at  
yards of Edward Hines Lumber Co., Chi-  
cago, Ill. 7-11

## J. J. Keenen, RIVERSIDE STEAM BOILER WORKS.

Marine, Locomotive, and  
Stationary Boilers.

MARINE WORK A SPECIALTY.  
SHEET IRON WORK OF ALL KINDS.

Repairing Promptly Attended to.

OFFICE AND WORKS, COR. COLOGNE AND FULLER STREETS,

Telephone Canal 401.

CHICAGO.

J. H. OWEN, Pres.,  
Chicago.F. H. VAN CLEVE, Sec.,  
Escanaba.Capt. GEO. BARTLEY, Supt.,  
Escanaba.

## Escanaba Towing and Wrecking Co.

ESCANABA, MICH.

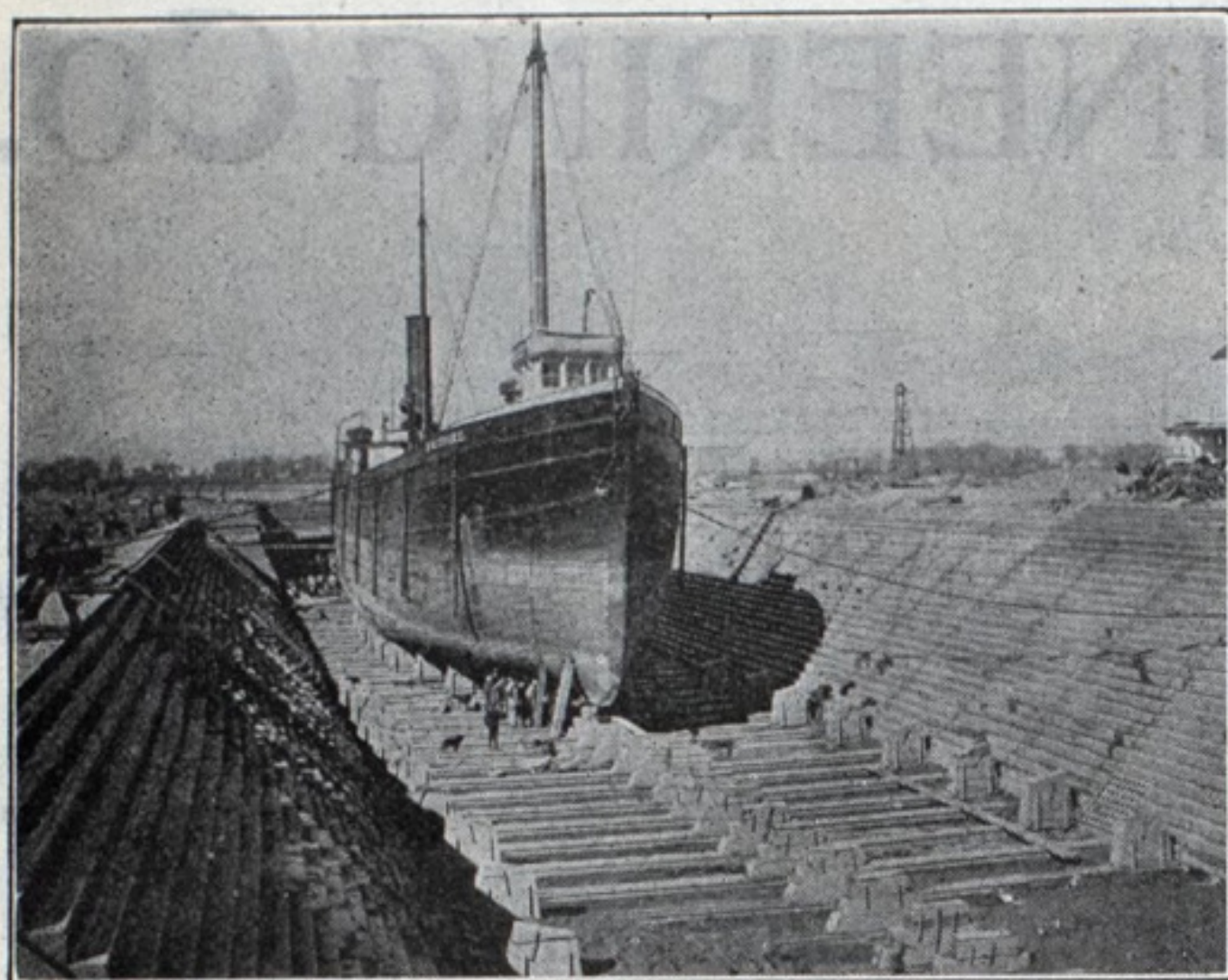
Tugs, Lighters, Steam Pumps, Hawser, Hydraulic Jacks and Diving Appliances always ready

TUG MONARCH—Engine Compound, Cylinder 16 and 80 in. diameter, 80 in. stroke, steam pressure al-  
lowed 125 pounds. TUG DELTA—Cylinder 20 by 22, steam pressure allowed 105 pounds.  
TUG OWEN—Cylinder 20 by 20, steam pressure allowed, 104 pounds.

CENTRIFUGAL PUMPS.

SEVEN AND FOURTEEN INCH SUCTION.





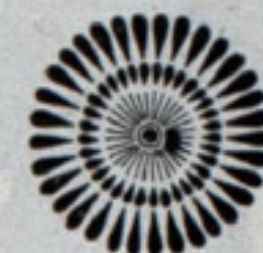
# CRAIG SHIP BUILDING CO.

TOLEDO, OHIO.

New Dry-Dock 450 feet long, 110 feet wide on top, 55 feet wide on bottom, 16 feet water on sill.

Repairs to Metal and Wooden Ships a Specialty.

**Metal and Wooden Ship Builders.**



H. A. HAWGOOD, Pres't.  
PHILIP MINCH, Vice-Pres't.

C. A. MORGAN, Gen'l Mang'r.

A. SMITH, Sec'y.  
J. R. SPRANKLE, Treas.

## The Cleveland Tug Company,

First-class Tugs, Steam Pumps, Divers, Hawsers, Lifting Screws, Etc., furnished Promptly on Orders by Telegraph or otherwise.



Steamers when outside wanting our Tugs, blow one long whistle and as many short ones as they want tugs.

OPEN DAY and NIGHT.

Long Distance Telephone 725.

OFFICE 23 RIVER ST.

### The "CINCINNATI"

Automatic Steam Steering Gear.

Simple, Powerful Machine. Noiseless and Sure. Send for Circular.

FRONTIER IRON WORKS, Detroit Mich.

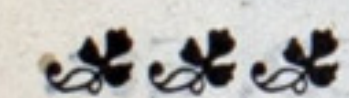
Agents for the Lakes.

## American Steel Barge Co.

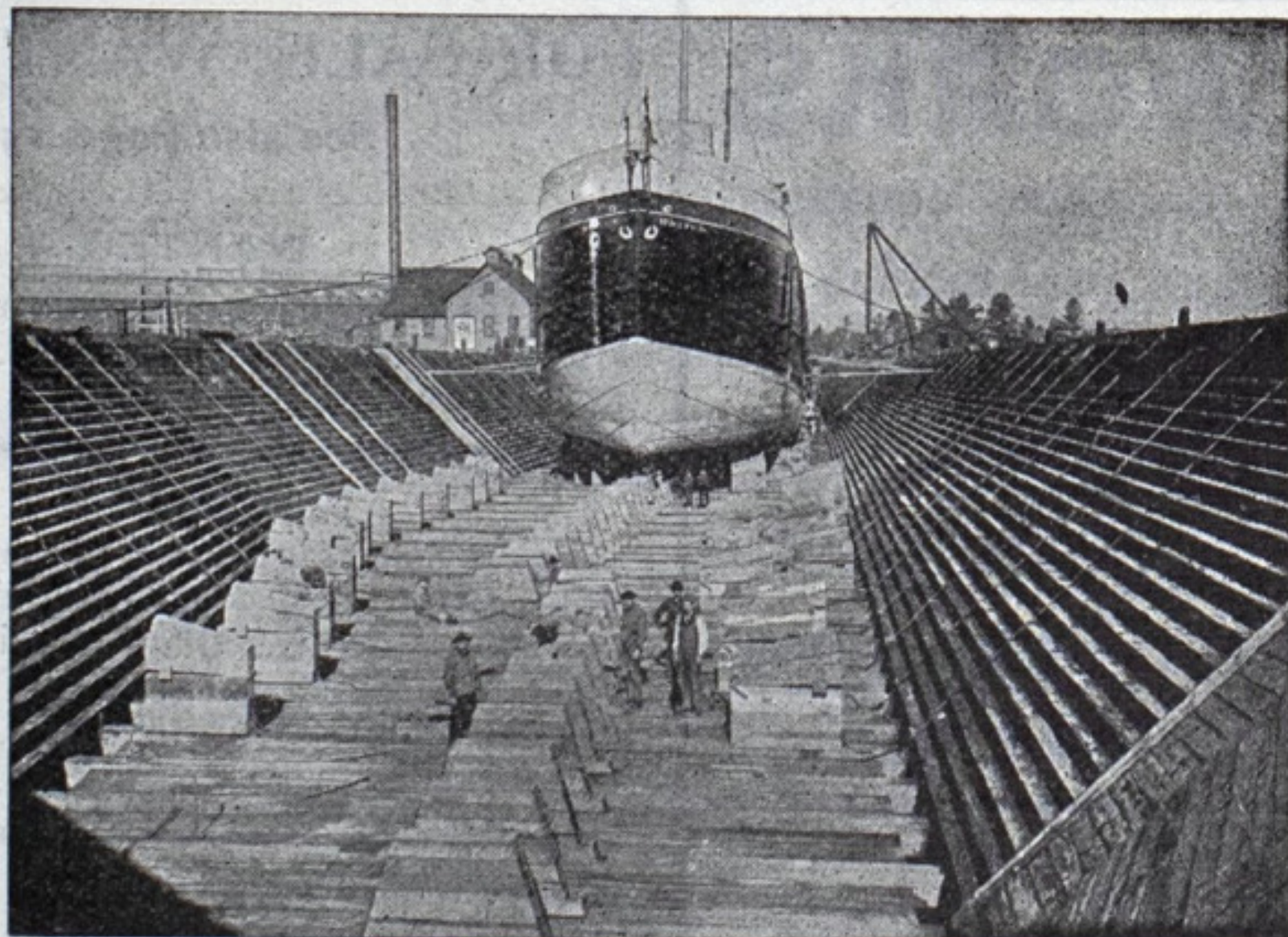
STEEL AND METAL SHIPS

Of all Classes built on shortest possible notice at our yards at WEST SUPERIOR, WIS., and also at EVERETT, WASH.

PHOTOGRAPH OF 300-FOOT BOAT IN DOCK.



Plates and Material always on hand to repair all kinds of Metal Ships in Shortest Time.



Best Quality of Oak in Stock for Repairing Wooden Vessels of all Classes.



#### SIZE OF DOCK

Length, Extreme.....	537 feet.	Entrance, Top.....	55 feet 9 in.
Breadth, Top.....	90 " 4 in.	Entrance, Bottom.....	50 "
Breadth, Bottom.....	52 "	Depth over Sills.....	18 "

LARGEST DRY-DOCK ON THE LAKES.

Prices for Repairs and Docking same as at Lower Lake Ports.

SUPERIOR, WIS.

A Number of Propeller Wheels in Stock at Dry-Dock.

## A. Gilmore's Sons,

Dry-Docking, Ship Building and Repairing.

EAST SIDE, NEAR IRONVILLE, - - - TOLEDO, O.

Dimensions of Dock, 236 feet long, 55 feet wide at top and 37 feet wide at gate. Nine feet water over sill. RATES OF DOCKING, Ten Cents per registered gross ton for vessels over 200 tons. Jig Mill and Planer in connection with Dock.

'PHONE NO. 157.

Paint Your Vessel with

## Superior Graphite Paint

NO BLISTERING, CRACKING OR SCALING.

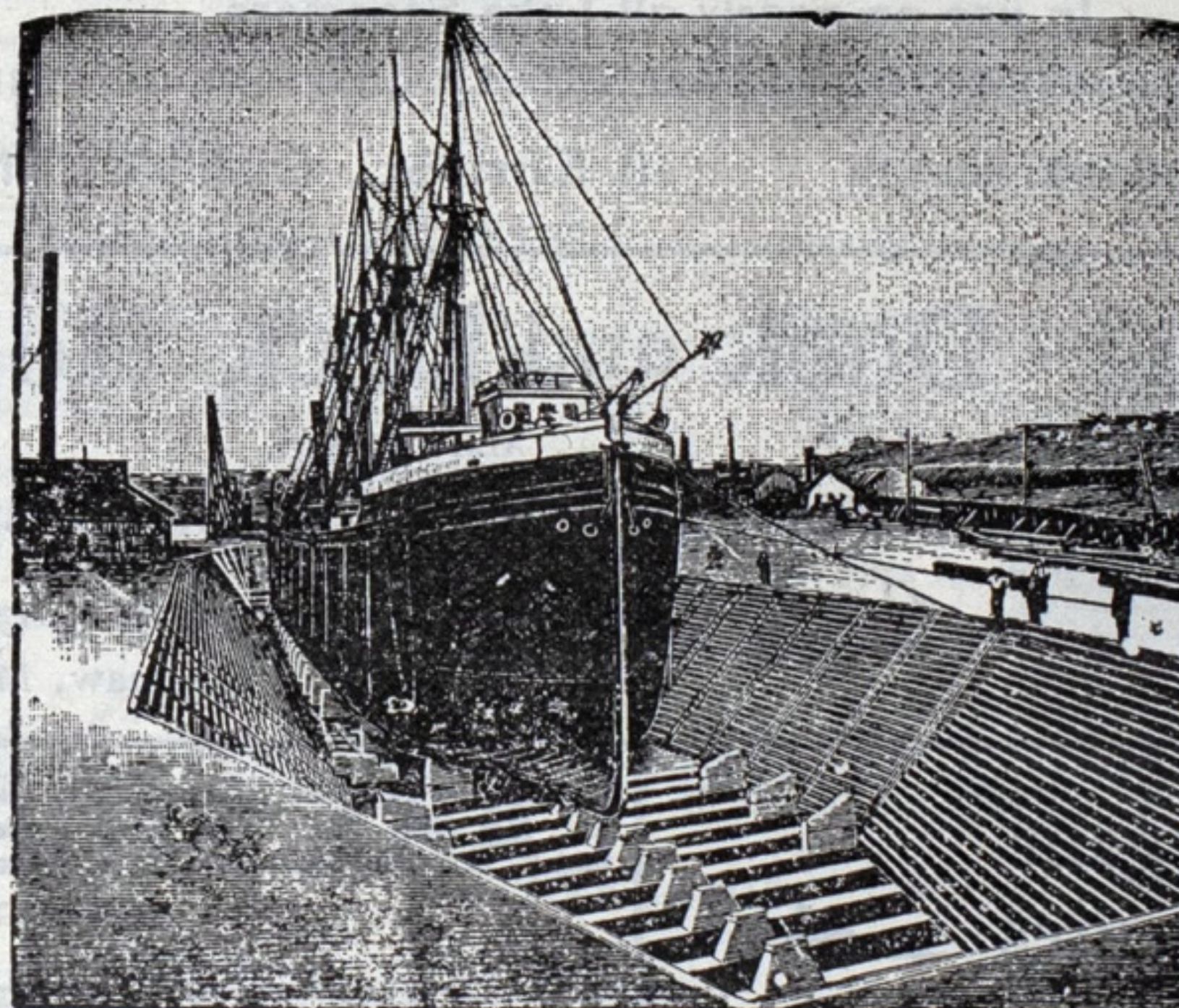
Made especially for Stacks, Decks, Sides, Hulls, and Water Compartments. Strictly Anti-Rust, and most durable and economical.

DETROIT GRAPHITE MFG. CO., 542 River St., Detroit, Mich.

WHITTON & BATES, Agents, 503 Perry-Payne Bldg., CLEVELAND.

## THE SHIP OWNERS DRY DOCK CO.

Largest DOCK YARD on the GREAT LAKES.



Capacity with Two Docks to Dock the Largest Ships on the Lakes.

GENERAL REPAIR WORK PROMPTLY ATTENDED TO.

Being equipped with Lucigen Lights we do work at night as well as day.

TELEPHONE 1635.

Foot of Weddell Street, CLEVELAND, O.

C. A. MACDONALD & CO.,

GENERAL MARINE INSURANCE AGENTS,

Rialto Building.

CHICAGO, ILL.

THOMAS WILSON,

MANAGING OWNER WILSON'S TRANSIT LINE,

General Forwarder, Freight and Vessel Agent,

CLEVELAND, O.

JOHN MITCHELL.

JOHN F. WEDOW.

ALFRED MITCHELL.

MITCHELL & CO.,

VESSEL AND INSURANCE AGENTS,

Office Telephone, 767.

Residence John Mitchell, 'Phone 3506. 508-509-510 Perry-Payne Bldg. Cleveland, O.

C. R. JONES & CO.,

VESSEL AGENTS,

FIRE AND MARINE INSURANCE,

Nos. 501, 502 and 503 Perry-Payne Bldg.

CLEVELAND, O.